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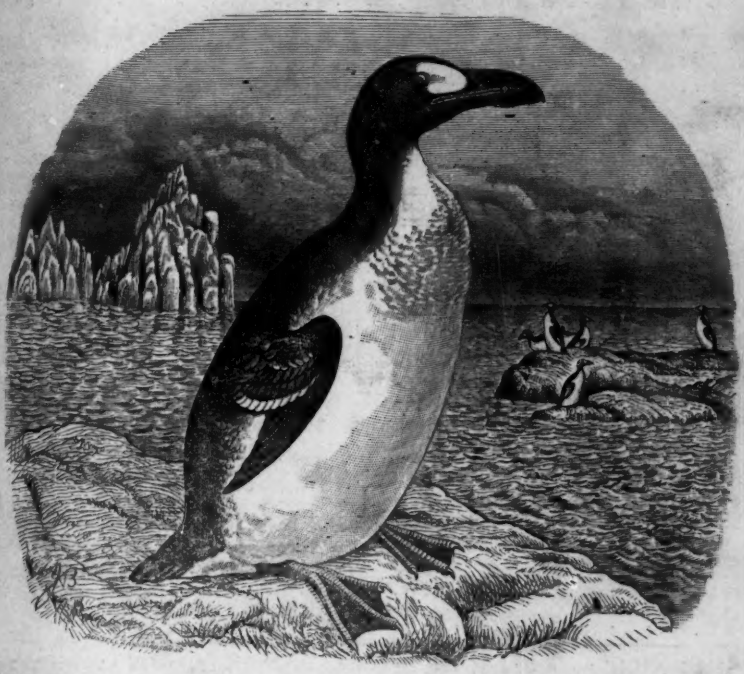

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'THE AUK,' published as the Organ of the AMERICAN ORNITHOLOGISTS' UNION, is conducted as a **Magazine of General Ornithology.** In general character it differs little from the late 'BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB,' of which it forms virtually a Second Series.

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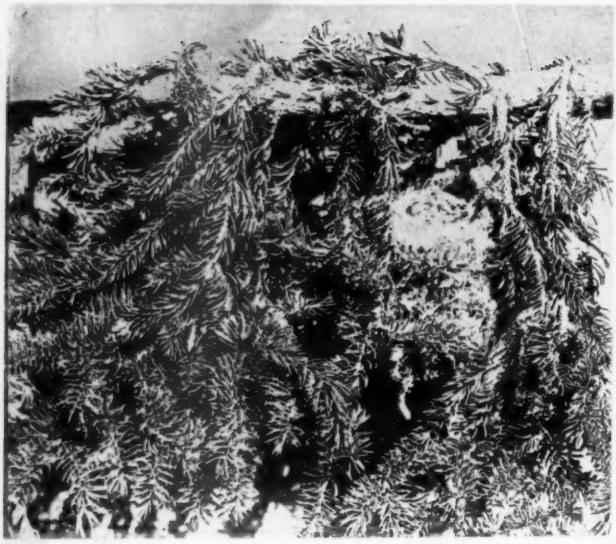

NESTS OF REGULUS SATRAPA.

Upper figure: nest found June 16, from photograph taken after leaves had dropped off.
Lower figure: nest found June 13, from photograph taken while the leaves yet remained on the branch.

THE AUK:

A QUARTERLY JOURNAL OF ORNITHOLOGY.

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BREEDING OF THE GOLDEN-CRESTED KINGLET (*REGULUS SATRAPA*) IN WORCESTER COUNTY, MASSACHUSETTS, WITH A DESCRIPTION OF ITS NEST AND EGGS.

BY WILLIAM BREWSTER.

DURING a visit to Winchendon, Worcester County, Massachusetts, in the latter part of June, 1887, I found, among other interesting things, a pair of Golden-crested Kinglets with young, the latter only a few days from the nest. They were in dense woods of mixed white pine (*P. strobus*) and spruce (*A. nigra*) on low, rather swampy ground. A careful search through several similar woods in the neighborhood failed to reveal any more birds of this species. Perhaps there were no others in 1887, for Mr. C. E. Bailey, who was my companion on that occasion, met with none either before or after my visit, although he spent most of the season collecting about Winchendon. Over the very same ground, however, in June, 1888, I found no less than six pairs of these Kinglets and, with the assistance of Messrs. C. E. Bailey, S. W. Denton, and H. M. Spelman, secured three of their nests, two with sets of nine eggs each.

As the published descriptions of the nesting of this species are somewhat meagre and more or less conflicting, it seems worth while to treat the present specimens at some length.

The first nest was found June 13, 1888, when the birds were

at work on the lining, the exterior being apparently completed, and was taken June 29, with a set of nine eggs, four perfectly fresh, the others slightly incubated. It was placed in a tall, slender spruce (*A. nigra*), on the south side, within about two feet of the top of the tree, and at least sixty feet above the ground, suspended among fine pendant twigs about two inches directly below a short horizontal branch, some twelve inches out from the main stem, and an equal distance from the end of the branch. The tree stood near the upper edge of a narrow strip of dry, rather open woods bordered on one side by a road, on the other by an extensive sphagnum swamp, the growth both in the swamp and along its edges being almost exclusively spruces (*A. nigra*) and balsams (*A. balsamifera*).

The nest measures externally: greatest depth, 3.60; least depth, 2.70; greatest diameter, 4.20; least diameter, 3.00 inches. Two measurements are required for each dimension because of the irregularity of the external outline. This although generally rounded is broken in places by deep depressions and prominent knobs or excrescences. The top of the nest is open, but the rim is slightly contracted or arched on every side over the deep hollow which contained the eggs. The extent of this contraction is best shown by the following measurements of the interior cavity: diameter at top, 1.15 × 1.95 inches; diameter midway between top and bottom, 1.40 × 2.10. The cavity is oblong, not round. The walls vary in thickness from 1.35 to .40. Outwardly they are composed chiefly of green mosses* prettily diversified with grayish lichens and *Usnea*, the general tone of the coloring, however, matching closely that of the surrounding spruce foliage. The interior at the bottom is lined with exceedingly delicate strips of soft inner bark and fine black rootlets similar to, if not identical with, those which almost invariably form the lining of the nest of the Black-and-yellow Warbler. Near the top are rather numerous feathers of the Ruffed Grouse, Hermit Thrush, and Oven-bird, arranged with the points of the quills down, the tips rising to, or slightly above, the rim and arching inward over the cavity, forming a screen that partially concealed the eggs.

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*These have been identified by a botanist as representing five species of *Hypnum* and one of *Frullania*.

The second nest was found June 16, when it was nearly completed, and taken June 29 with nine eggs, five of which were fresh, the remaining four being slightly incubated. The locality was a lonely glen on high land between two ridges. The ridges were covered with young white pines. The prevailing growth in the glen was spruce and hemlock, the trees of large size and standing so thickly together as to shut out nearly all sunlight from the ground beneath. The nest was on the west side of a sturdy, heavily limbed spruce (*A. nigra*) about fifty feet above the ground, twenty feet below the top of the tree, six feet out from the trunk, and two and a half feet from the end of the branch, in a dense cluster of stiff, radiating (not pendant) twigs, the top of the nest being only an inch below, but the whole structure slightly on one side of the branch from which its supports sprang. Above and on every side it was so perfectly concealed by the dense flake-like masses of spruce foliage that it was impossible to see it from any direction except by parting the surrounding twigs with the hand. From directly below, however, a small portion of the bottom was visible, even from the ground. The foliage immediately over the top was particularly dense, forming a canopy which must have been quite impervious to the sun's rays, and a fairly good protection from rain also. Beneath this canopy there was barely sufficient room for the birds to enter. In general shape and construction this nest closely resembles the one above described. It is, however, smaller, shallower, more compact, rounder, and less irregular in outline, measuring as follows: externally, greatest depth, 2.55; least depth, 2.45; greatest diameter, 4; least diameter, 2.90 inches; interior, diameter at rim, 1.70; diameter midway, 1.75; depth, 1.40; greatest thickness of walls, 1.60; least, .75. The materials composing the exterior are, similarly, green mosses and gray lichens, but the lichens are much more sparingly used. The lining, as far as can be seen without subjecting the nest to undue violence of handling, is wholly of the downy under feathers of the Ruffed Grouse. These are used so lavishly that, radiating inward from every side, they nearly fill the interior and almost perfectly conceal its contents.

The third nest was also in a spruce which stood near the top of a steep, picturesque hillside covered with noble old hemlocks interspersed with a few rather stunted spruces, the ground be-

neath rough and broken by ledges whose rugged outlines were more or less softened by a luxuriant covering of moss and rock ferns. The nest was on the south side of the tree about thirty feet above the ground, twelve feet out from the main stem, and five feet from the end of the branch. It was found June 17, when the bird was at work carrying into it what appeared to be the lining. We could not examine it closely without cutting off the branch, so it was left until June 29, when it proved to be empty, evidently deserted, and so dilapidated that at first we were inclined to believe it an old nest. This cannot have been the case, however, for the materials of which it is composed are quite new and fresh. These are essentially the same as in the other two nests, but there is no lining, although the outer edges of the rim as well as much of the upper portions of the exterior are covered with a profusion of feathers (chiefly those of the Ruffed Grouse with a few of the Red Crossbill) while others are merely entangled among the surrounding twigs. The probable explanation of this state of affairs is that the nest was first deserted, and shortly afterwards partially dismantled, either by the owners or by some mischievous squirrel or mouse. Originally, however, it must have had feathers over most of the exterior, for many of those now there are firmly attached to, or even woven into, the moss of which it is composed. This nest is larger than either of the others, measuring as follows: greatest external diameter, 4.00; least, 2.10; greatest depth, 3.90; least, 2.90 inches. The interior is too badly damaged to admit of accurate measurements.

To recapitulate. In position—but not of course in construction—the first nest resembles that of the Baltimore Oriole, being similarly hung near the ends of long, drooping twigs. The second is built more like a Vireo's, but with this difference, that instead of being suspended by its upper edges only, and between the forks of a single stem, it is supported on every side, and from the top nearly to the bottom, by numerous slender, but stiff, radiating twigs. It is, nevertheless, a distinctly pensile structure. The position of the third nest is different from that of either of the others. Placed nearly midway between two stout branches which in reality are forks of the same branch, one above the other, and at the point in question about six inches apart, it is attached by the sides and upper edges to the twigs which depend

from the branch above, while its bottom rests firmly on a bristling platform of stems which rise from the branch below. Thus it is at once pensile and non-pensile.

The eighteen eggs making up the two sets above-mentioned vary considerably in shape. The majority are more or less regularly ovate, but several are elliptical-ovate, while two are very nearly perfectly elliptical-oval. The ground color varies from creamy white to exceedingly deep, often somewhat muddy, cream color. Over this light ground are sprinkled numerous markings of pale wood-brown, while at least three specimens have a few spots and blotches of faint lavender. The brown markings vary in size from the finest possible dots to rather large blotches. In most of the specimens they are distributed pretty thickly over the entire shell, but in nearly all they are most numerous about the larger ends where they form a more or less distinct wreath pattern, while in four or five (and these have the lightest ground color) they are nearly confined to the larger ends, the remainder of the egg being very sparsely marked. Separating these eighteen eggs into the two sets to which they respectively belong, I find that these sets resemble each other very closely in every way, each having specimens representing all the variations above described excepting that all three of the eggs with lavender markings belong to the same set. In both sets the whitest, most sparsely spotted eggs were the freshest, showing that they were the last ones laid.

Lest the detail of the above description mislead the reader as to the general appearance of these eggs it may be well to add that while there can be no doubt that the markings are genuine pigment spots and not mere superficial stains (this has been doubted by some writers), they are, as a rule, so fine and so little darker than the ground color, that many of the eggs when viewed at a distance or in a poor light appear brownish cream color and immaculate. The eggs just described measure respectively: (Set A—9) .56 × .44, .57 × .44, .55 × .42, .57 × .43, .57 × .44, .57 × .44, .56 × .45, .57 × .44, .57 × .44 inches. (Set B—9) .56 × .44, .56 × .45, .52 × .42, .59 × .45, .57 × .45, .53 × .43, .57 × .45, .56 × .44, .54 × .44 inches.

In both nests the eggs, too numerous to find sufficient space for their accommodation on the bottom of the nest, *were piled in two layers, one above the other.* In the first nest the relative

number of eggs in the two layers was not noted. In the second there were five eggs in the lower and four in the upper layer.

All these nests were found by watching the birds while building, a task of no slight difficulty in dense spruce woods where the light was dim, even at noonday, and mosquitoes were so numerous as to make it torture to remain still for any considerable length of time. Moreover, the movements of the little architect were erratic and puzzling to the last degree. One moment fluttering at the end of a branch, her bill filled with a mass of building material, or tugging at the loose end of a shred of bark or moss, the next hidden from sight among the dense spruce foliage, now flitting rapidly from tree to tree, again dashing back and forth between two adjoining trees, the female would often appear and disappear a dozen times and at as many different places in the course of a minute or two. The chief difficulty, of course, was to make out just when and where she deposited her burden, which often vanished in the most unaccountable way. We finally found that her almost invariable custom was to approach the nest by short flights and devious courses, and upon reaching it dash in, deposit and arrange her load in from *two to four seconds*, and at once dart off in search of more. When it is considered that the nest, even at a distance of only a few yards, was indistinguishable from hundreds of dark clusters in its own and neighboring trees, and that the bird during her flights to and from it often entered and remained quite as long within several of these clusters as in the nest itself, the difficulties of the case will be better understood. As a matter of fact we did not in a single instance settle the exact position of the prize until we had watched the birds for several hours and spent much fruitless time in climbing to the deceptive clusters already mentioned.

In her flights after building material the female sometimes went a distance of a hundred yards or more, but oftener she confined her quest to the trees within a radius of fifty yards or less of the one which concealed the nest. She was invariably followed closely by the male who, however, did not assist her in any way other than by singing almost incessantly, in an undertone. In the case of the three nests which we took, and a fourth which we must have been very near to but did not find, the males in every instance first attracted us to the spot where their mates were at work by this peculiar, subdued song. It was often

repeated almost incessantly dozens of times in succession. Should it prove to be, as seems probable, an invariable and characteristic accompaniment to the operation of nest-building its value as a clue to the neighborhood of the nest and the presence of the female is worth bearing in mind. Besides the song* both birds uttered frequently a low *ti*, *ti*, *ti* which seemed to serve as a call to indicate one another's presence or position.

In each instance the sitting female left her eggs as soon as the movements of the climber began to shake the tree, but when he neared the nest she with her mate showed the utmost anxiety and boldness, approaching within a few feet of his head and uttering the *tzee-tzee-tzee* note incessantly.

To conclude, the nests above described are, I believe, the first that have ever been taken in Massachusetts, although my finding the brood of young birds at Winchendon in 1887 was, of course, prior and equally conclusive proof that the species breeds within our limits. That it breeds regularly at Winchendon is highly probable, but, as already stated, there are reasons for doubting that it is always as common there as it was in 1888. About July 1 of this latter year, it was discovered by Mr. Faxon in considerable numbers, and unquestionably breeding, on the northern side of Mt. Graylock in Berkshire County where I searched for it vainly in 1885 although, to be sure, I did not visit the particular part of that mountain where it has since been found. Hence my failure to meet with it affords no proof of its absence or even rarity there in 1885. Nevertheless I cannot help thinking that the number of birds which nested the past season in both Berkshire and Worcester Counties may have been exceptional.

Another point worth considering is the approximate date at which this Kinglet may be assumed to nest. The fact that the nest found by Mr. Minot† among the White Mountains of New Hampshire in 1876 contained young as late as July 16, taken in connection with my observations in 1888, would seem to indicate that the bird is a late breeder and that somewhere between

* This begins with a succession of five or six fine, shrill, high-pitched, somewhat faltering notes and ends with a short, rapid, rather explosive warble. The opening notes are given in a rising key but the song falls rapidly at the end. The whole may be expressed as follows: *tzee, tzee, tzee, tzee, ti, ti, ter-ti-ti-ti-ti.*

† Land and Game Birds of New England, p. 56.

June 10 and 17 would be the best time to find the female building (it would be next to useless to search for the nests after they are completed), while June 25 to July 1 should be early enough to expect full sets of eggs. But opposed to this conclusion are the early date (June 26) at which I found young on wing near Winchendon in 1887 and the record * by Mr. Charles H. Andros of a set of ten eggs taken by Mr. Cheney at Grand Manan, New Brunswick, "on or about June 1." It is possible that the species rears two broods in a season but, on the whole, I am inclined to believe that its time of nesting is irregular, varying at different places or at the same place in different years.

BIRDS OF CARROLL COUNTY, INDIANA.

BY BARTON W. EVERMANN.

CARROLL COUNTY lies in the northern central part of Indiana, about one hundred miles south of Lake Michigan. The chief river of the County is the Wabash, which flows southwest across the northwest part of the County. The greater part of the County lies to the east and southeast of the river, and is drained into it by Rock, Deer, and Wild Cat Creeks. The Tippecanoe River flows for a few miles through the northwest corner of the County, its direction being almost due south.

All that portion of the County lying to the east and southeast of the Wabash (embracing ten of the thirteen townships) was originally very heavily timbered, and there yet remain many uncleared acres. The chief forest trees are beech, red and white oak, elm, ash, poplar (tulip), sycamore, maple (hard and soft), walnut (black and white), hickory, — in short the usual deciduous trees of the ordinary forest of central Indiana. There are practically no pines or other evergreens in the County, except a very few along the Tippecanoe. The three townships lying on the right bank of the Wabash differ materially from those on the other side. Adams, the most eastern of the three, is inclined to

* Ornithologist and Oölogist, Vol. 12, p. 203.

be quite broken near the river, and is covered with a heavy growth of oaks. The other two townships are nearly all prairie, with here and there a grove of small white oaks, and a belt of timber along each of the two rivers. Excepting a portion of Adams township and a small area in the southwest corner of the County near where Wild Cat Creek leaves it, the surface may be said to be level or gently undulating. All the streams which empty into the Wabash from the east flow in a general westerly direction.

Most of the observations upon which this list is based were made (1) in the vicinity of Burlington in the southeast corner of the County, and (2) near Camden in the central part of the County. Burlington is situated on the south bank of Wild Cat Creek, and Camden is upon Deer Creek, sixteen miles to the northwest. During the years 1883-1885, however, I was enabled to make observations in every part of the County. I began recording my observations of the birds of this County in the autumn of 1877, and continued it until July, 1879, when I left the State. Some few notes are the results of brief visits in the summers of 1881 and 1882. But the list chiefly depends upon the observations made from March, 1883, to July, 1885.

In order that the list might be made thoroughly reliable, in so far as is in my power to make it so, I have included in it only those species which I have positively identified as belonging to the avifauna of the County. Not a single species not actually seen by me in the County has been admitted into the list proper. Thus restricted, the list pretty correctly indicates what the student of birds will find when he collects here. Where dates are given, those for the spring migrations refer to first arrivals unless otherwise stated. In nomenclature and classification the A. O. U. Code and Check-List of N. A. Birds has been followed.

1. **Podilymbus podiceps.** PIED-BILLED GREBE. — I have occasionally seen this Diver in spring and again in the autumn on Deer Creek. It seems to be but a rare migrant.

2. **Urinator imber.** LOON. — Seen occasionally on the Wabash and rarely on Wild Cat and Deer Creeks. I saw one which was killed on Wild Cat Creek, April 18, 1885.

3. **Larus argentatus smithsonianus.** AMERICAN HERRING GULL.

4. **Larus delawarensis.** RING-BILLED GULL.

5. **Larus philadelphia.** BONAPARTE'S GULL.—I have seen these three species upon the Wabash a few times in spring, but never in autumn. Specimens of the last were obtained at Lake Maxinkuckee April 17, 1885.

6. **Sterna hirundo.** COMMON TERN. — On May 2, 1884, I saw perhaps a dozen flying up the river near Delphi. I obtained one at Lake Maxinkuckee May 11, 1885, when it was common.

7. **Pelecanus erythrorhynchos.** AMERICAN WHITE PELICAN. — Rare migrant. One shot by Mr. W. W. Black in the spring of 1881, near the Tippecanoe River.

8. **Mergus americanus.** AMERICAN MERGANSER. — Common spring migrant; less common in the autumn and winter. It usually appears on Deer Creek about the first of March (March 1, 1878; March 1, 1879; Feb. 13, 1884; Feb. 17, 1885). In the spring of 1885 it continued in Deer Creek until late in April. A few are usually to be found in winter in the Wabash wherever it is not frozen. During the spring migrations this seems to be the most common species on the creeks of the County.

9. **Mergus serrator.** RED-BREASTED MERGANSER.—This is one of the rarest Ducks in this region. I have seen it but two or three times.

10. **Lophodytes cucullatus.** HOODED MERGANSER.—A rather common migrant, remaining in the spring as late as May. I have often met with single pairs about swamps and ponds in midsummer, and have seen the young on Deer Creek in July. I think, however, that the bulk of the species breeds much farther north. I have seldom seen the males in full adult plumage. April 8, 1885.

11. **Anas boschas.** MALLARD. — The Mallard is not rare on the river during the spring and autumn migrations, but I have not often seen it on the smaller streams. It probably bred in the County formerly, but I do not think it does so now.

12. **Anas obscura.** BLACK DUCK.—I saw a single specimen in the Delphi market in March, 1879, which was said to have been shot on the Wabash near the town.

13. **Anas americana.** BALDPATE. — Spring and autumn migrant, — apparently not common. A flock of about a dozen seen on Deer Creek March 26, 1884, from which a female was shot. Another flock of six was seen on the same creek March 24, 1885.

14. **Anas carolinensis.** GREEN-WINGED TEAL. — Probably more common than my records indicate. The only specimen I ever saw in the County is a female which I took on Deer Creek, April 8, 1885.

15. **Anas discors.** BLUE-WINGED TEAL. — I have seen specimens in the Delphi market, but never took any in the County myself. Common at Lake Maxinkuckee May 11, 1885.

16. **Spatula clypeata.** SHOVELLER. — A not very common migrant. Shot one on Deer Creek, March 18, 1879, and another March 26, 1885. Several were seen on this last date.

17. **Dafila acuta.** PINTAIL.—A rather rare migrant.

18. **Aix sponsa.** WOOD DUCK.—Formerly a common summer resident, but now one of the rarest Ducks in this region. March 1 and 14, 1879; July, 1877; March 26, 1885.

19. **Aythya affinis.** LESSER SCAUP DUCK.—Migrant, but not often seen by me. April 18, 1885.

20. **Glaucionetta clangula americana.** AMERICAN GOLDEN-EYE.—Rare migrant; seen most often in March and April.

21. **Glaucionetta islandica.** BARROW'S GOLDEN-EYE.—A very rare bird in this County. A female which I shot in Deer Creek, near Camden, March 19, 1885, is, as far as I know, the only specimen of the species ever taken in this part of the State.

22. **Charitonetta albeola.** BUFFLE-HEAD.—A more common migrant than either of the last. A few probably remain in open places in the river through the winter.

23. **Erismatura rubida.** RUDDY DUCK.—A rare spring and autumn migrant.

24. **Branta canadensis.** CANADA GOOSE.—Formerly an abundant migrant, often stopping in wheat fields to feed, but of late years it is much less common; only a few flocks are seen flying over each spring and autumn, and but rarely are any killed by the local sportsmen. On the prairies to the northwest of Carroll County they are said to still stop in considerable numbers.

25. **Olor columbianus.** WHISTLING SWAN.—A regular but rare migrant, most often seen in the spring. One or more specimens are taken nearly every spring on the Wabash near Delphi.

26. **Olor buccinator.** TRUMPETER SWAN.—Less common than the Whistling Swan. I remember but one specimen; that was killed on Wild Cat Creek, near Burlington, several years ago.

27. **Botaurus lentiginosus** AMERICAN BITTERN.—While the Bittern is probably a not uncommon migrant through the County, I have seen very few within the County, owing no doubt to the fact that I was able to make but few observations in regions suitable for such birds. Specimens gotten at Lake Maxinkuckee April 15 and May 2 and 9, 1885.

28. **Ardea herodias.** GREAT BLUE HERON.—This Heron begins to arrive from the South quite early in the spring (April 8, 1884; February 14, March 1 and 18, 1885), and remains until late in October. It seems to be by far the most abundant Heron which visits us. At present there are two large heronries in the County that I know of. The first of these is in Adams township near the northern limit of the County, about six miles north of the Wabash and about the same distance east of the Tippecanoe. The other is in what is known as the Maple Swamp, in the southern part of the County, about six miles south of Wild Cat Creek, or eighteen miles from the Wabash. This swamp is made by the widening of a small stream called Middle Fork, so that it covers an area of several hundred acres. The lower portion of this swamp is covered with a heavy growth of swamp ash and soft maple, and in the tops of these trees the Herons build their nests. My first visit to this heronry was on June 12, 1882. We found more than a hundred pairs nesting there then, and their many nests, some no longer used, presented a very interesting sight. Passing by the swamp in winter when the leaves are off, the nests show very plainly. As many as thirteen nests were seen in one tree, and many other trees contained from three to ten nests each. I climbed to many of

these nests on May 21, 1883, and found young in some and eggs in various stages of incubation in the others. It is said that many more nested here formerly, but they have been so harassed and molested by squirrel hunters and others who annoy them needlessly, that they are being gradually driven away. In the last two years the swamp has been ditched and this heronry may now be counted among the things of the past. Solitary pairs of Herons are found breeding in various other parts of the County, and I remember that years ago there was a small colony (of perhaps twenty pairs) in some large cottonwoods about a mile south of Burlington, near my father's farm.

29. **Ardea egretta**. AMERICAN EGRET.—Seen in flocks of six to ten flying northward in the spring, and single individuals are common along the streams during July, August, and the first part of September. I do not think any breed in this County.

30. **Ardea virescens**. GREEN HERON.—This little Heron is a common summer resident, breeding in the tops of small trees along the creeks, and occasionally in apple trees in old orchards. It arrives from the south late in April, and full sets of eggs are found by May 13.

31. **Nycticorax nycticorax nævius**. BLACK-CROWNED NIGHT HERON.—Apparently a very rare migrant. On the evening of April 30, 1878, I shot a female in fine plumage at a small pond near Camden. On November 24, 1884, a young female was killed near Camden and brought to me. Both of these are now in my collection. About September 1, 1887, another specimen was killed near Camden. These are the only specimens of the species I have ever seen or heard of in the County.

32. **Grus mexicana**. SANDHILL CRANE.—A regular migrant, but seldom seen except in the prairie portion of the County. April 7, 1885.

33. **Porzana carolina**. SORA.—A rather common migrant, to be met with about the first week in May if you chance to search for it in suitable places. Common at the Armstrong Pond near Camden, May 9-10, 1885.

34. **Gallinula galeata**. FLORIDA GALLINULE.—One killed near Burlington, April 28, 1883, and another seen May 11, 1885. These are the only specimens of this southern bird that I have ever seen in the State. The last of these was seen in a woodland near Burlington. It was quite tame and I was able to follow it about for some time, driving it from one pile of brush or small thicket to another. It would walk or run slowly, never attempting to fly except when crowded closely. Being without my gun I was unable to secure it. The one killed April 28, 1883, is now in my collection.

35. **Fulica americana**. AMERICAN COOT.—A not uncommon migrant. April 19, 1884; April 8, 1885; November 21, 1884. In the spring of 1885, one was taken May 12.

36. **Philohela minor**. AMERICAN WOODCOCK.—Formerly a rather common summer resident, but now quite rare. Nests early in April. Young able to fly at least as early as July 1.

37. **Gallinago delicata**. WILSON'S SNIPE.—Rather common migrant, most often seen in spring. April 21, 1885; May 1, 1884.

38. **Tringa maculata**. PECTORAL SANDPIPER.—Rare migrant in March and April.

39. **Tringa minutilla**. LEAST SANDPIPER.—Rare migrant.

40. **Ereunetes pusillus**. SEMIPALMATED SANDPIPER.—Not uncommon migrant. April 24, 1884; April 21, 1885. A few breed(?).

41. **Limosa fedoa** MARBLED GODWIT.—Very rare migrant. April, 1883.

42. **Totanus melanoleucus**. GREATER YELLOW-LEGS.—Seen occasionally along the streams in spring and autumn.

43. **Totanus flavipes**. YELLOW-LEGS.—Migrant; apparently less common than the preceding.

44. **Totanus solitarius**. SOLITARY SANDPIPER.—Rather common migrant.

45. **Actitis macularia**. SPOTTED SANDPIPER.—Rather common summer resident.

46. **Ægialitis vocifera**. KILLDEER.—Common summer resident. Usually arrives about March 15. None remain over winter.

47. **Colinus virginianus**. BOB-WHITE.—Formerly an abundant resident, but now rare. During the years 1883-1885, I do not think I saw over a hundred Quail in the County. Hard winters and greedy pot-hunters have about exterminated them.

48. **Bonasa umbellus**. RUFFED GROUSE.—A rare resident, small numbers being found in certain localities that I know of. These are usually in heavy undergrowth along the streams. March 7, 1878, one shot. August, 1881, several seen. Several seen in the winter of 1881–82.

49. **Tympanuchus americanus**. PRAIRIE CHICKEN.—Rare resident in the northwest part of the County where they can be heard almost any morning during the early spring. A few years ago they were occasionally seen in the eastern part of the County.

50. **Meleagris gallopavo**. WILD TURKEY.—Up to about 1870 a common resident. During the winter it was a common practice to trap the Wild Turkey in large rail pens. A trench was dug under one side of the pen, and by scattering corn along it the birds were induced into the pen, and when once inside they were unable to see the way out, a broad board being placed over the trench just inside the rails.

The last that I saw or heard of in the County was in February, 1878, near Camden.

51. **Ectopistes migratorius**. PASSENGER PIGEON.—Until within the past fifteen years Wild Pigeons were very abundant during the spring migrations, and again during the autumn when there was an abundance of 'mast.' Then thousands were caught in nets, especially on the prairie near Pittsburg. A few were killed in the autumn of 1883, and I saw two on May 8, 1884, these being the last I have seen in the County. One seen May 3, 1883. Several seen at Maxinkuckee April 6, 1885.

52. **Zenaidura macroura**. MOURNING DOVE.—An abundant summer resident, and occasionally a few remain all winter. They generally arrive in the spring about March 16, and full sets of eggs are found as

early as April 5. On May 9, 1885, I found a nest of the Dove containing *three* eggs,—the first instance that ever came under my observation of more than two eggs in a nest.

53. **Cathartes aura.** TURKEY BUZZARD.—The Turkey Buzzard is a common summer resident of Carroll County, arriving in the spring early in March. Full sets of eggs were obtained April 23, and again on April 29. March 16, 1884; March 12, 1885.

54. **Circus hudsonius.** MARSH HARRIER.—Spring visitant. I have seen it but rarely. I think it breeds near Lake Maxinkuckee, as I have seen it there in July.

55. **Accipiter velox.** SHARP-SHINNED HAWK.—A very rare resident, seen oftenest in the spring. One gotten October 27, 1884.

56. **Accipiter cooperi.** COOPER'S HAWK.—A rare resident, especially so in winter. Nest with full complement of eggs found May 10, 1883.

57. **Buteo borealis.** RED-TAILED HAWK.—Our most abundant Hawk. While it is resident as a species, yet the individual birds migrate more or less. They appear most numerously in March and April, and again in August and September. I have found young Hawks in the nest as early as April 15.

58. **Buteo lineatus.** RED-SHOULDERED HAWK.—Resident, but less common than the preceding. Breeds about the same time.

59. **Buteo latissimus.** BROAD-WINGED HAWK.—I have occasionally seen this Hawk in spring and autumn. It appears to be rather rare.

60. **Archibuteo lagopus sancti-johannis.** ROUGH-LEGGED HAWK.—A rare winter visitant.

61. **Aquila chrysaëtos.** GOLDEN EAGLE.—A very rare winter visitor. I know of one that was killed in the eastern part of the County in December, 1883.

62. **Haliæetus leucocephalus.** BALD EAGLE. Rather frequent as a winter visitor. Hardly a winter passes that two or three are not taken in the County. I have noticed them oftenest along the Wabash and the Tippecanoe near which they are said to have bred not many years ago. I have a fine adult male that was caught in the southwestern part of the County, February 20, 1885. Scarcely does an Eagle come into our State now and get away alive, if he tarry more than a day or two.

63. **Falco columbarius.** PIGEON HAWK.—Perhaps a rare resident.

64. **Falco sparverius.** SPARROW HAWK.—A common summer resident, and a few remain all the year.

65. **Pandion haliaëtus carolinensis.** FISH HAWK.—The Osprey is a rare spring and autumn visitant. September 21, 1883; April 22, 1884; September 22, 1884.

66. **Asio wilsonianus.** LONG-EARED OWL.—Seemingly a rare winter visitor. I have specimens obtained January 29, 1884, February 5, 1886, and January 14, 1888.

67. **Asio accipitrinus.** SHORT-EARED OWL.—A very rare winter visitant.

68. **Syrnium nebulosum.** BARRED OWL.—Resident. This is the most common Owl in this part of the State.

69. **Nyctala acadica.** SAW-WHET OWL.—Probably resident,—very rare. The only time I ever saw any Owls of this species in Carroll County was on May 8, 1883. In an old thicket near Burlington, I found six young Saw-whets in a hole in a dead elm. The hole was about twenty feet from the ground, and the young Owls were able to fly quite well. I have heard this Owl at various times in the spring, but these are the only ones seen.

70. **Megascops asio.** SCREECH OWL.—A common resident, but apparently more abundant some years than others. They were particularly abundant in the winter of 1878-79, and again in 1884-85. Perhaps half of those taken in 1878-79 were of the red form, while nearly all those taken since then were gray. A red male was caught at Burlington, January 14, 1888.

71. **Bubo virginianus.** GREAT HORNED OWL.—Next to the Barred Owl, our most common resident.

72. **Nyctea nyctea.** SNOWY OWL.—An extremely rare visitant. One was taken near Camden in the winter of 1865.

[*To be continued.*]

NOTES ON THE NEST AND EGGS OF *PEUCÆA ÆSTIVALIS BACHMANI* AUD., BACHMAN'S SPARROW.

BY CAPT. CHAS. E. BENDIRE.

THE life history of this interesting species is still rather imperfectly known, and as far as I am aware no authentic accounts of its nest and eggs are to be found in any ornithological publications. Even its distribution is not well defined as yet. Mr. William Brewster found it abundant near Charleston, South Carolina, and this seems to be the only point on the Atlantic coast where it has so far been taken. It is said to breed there. See Auk, Vol. II, Jan., 1885, p. 106. According to Ridgway's Manual of North American Birds, its habitat is given as follows. Southern Atlantic and Gulf States and lower Mississippi Valley, north to North Carolina, eastern Tennessee, Kentucky, southern Illinois and Indiana, west to middle northern Texas. Mr. Wm. Lloyd, in his list of birds of Tom Green and Concho Counties, Texas (Auk, Vol. IV, Oct., 1887, p. 292), says: "*Peucæa æstivalis bachmani*, Bachman's Sparrow. Summer visitor in

eastern Concho County. Nests found May 20 to June 1. Eggs invariably four." This is the only reference to the nest and eggs of this form known to me, and is rather vague.

Through the kindness of Dr. Wm. C. Avery of Greensboro, Alabama, an enthusiastic naturalist, who has devoted considerable labor and no little time to the study of the nesting habits of this species, I am enabled to give what I consider the first reliable and accurate descriptions of the nest and eggs of Bachman's Sparrow. In addition to not less than five nests and several full sets of eggs, adult birds, and young of the year, all generously presented to the National Museum collection at Washington, D. C., Doctor Avery has sent the writer small pen and ink sketches of several of the nests and a beautifully executed crayon drawing, natural size, by Miss M. Erwin, which shows the peculiar and unique structure and shape of these nests as far as this genus is concerned, perfectly, and enables me to give a better pen picture of them than I could have done otherwise. Greensboro, Alabama, is situated in the central part of the State, about 140 miles north of Mobile.

All the nests of this bird vary totally in structure from those of the other species of the genus *Peucæa*, as far as known to me. They are all distinctly roofed over or domed, a feature only found in the nest of a closely allied species, *Embernagra rufivirgata*, the Texas Sparrow, which constructs a somewhat similar nest. They are cylindrical in shape, about seven or eight inches long by three inches in height, and four and one half inches wide. The inner cavity is from three to four inches in length, about two inches wide, and one and three quarters inches high. The rear wall of the nest is about one and three quarters inches thick, the sides about an inch, and the roof a little over half an inch in thickness. These measurements vary somewhat in different specimens. The nests are all constructed out of dry grasses exclusively, and are lined with fine grass tops only. Some are much more artistically and compactly built than others; the roof projects somewhat over the entrance in all cases. The measurements are taken from the best preserved nest, No. 23,611, National Museum Collection, obtained May 8, 1888, near Greensboro, Alabama, containing four nearly fresh eggs. The base of the nest is always placed in a slight depression of the ground, and the entrance is invariably canted upwards, at an angle of

about 15°, in some instances the elevation is greater still. The entrance to the majority of the nests found faced the west. The above-mentioned nest was found on the side of a hill in a sparse growth of old-field pines (*Pinus tæda*), and was supported in the rear by a tuft of grass (broom sedge).

A second one, found May 9, in a patch of pine and plum bushes (*Prunus chicasa*) was held snugly between two tufts of broom sedge. It contained three young birds nearly grown and an addled egg. The parents were perched on a pine, about fifteen steps from the Doctor, and manifested their alarm at his presence by their nervous movements. A short search revealed this nest. It resembled the one found on the 8th, except that the entrance was somewhat more inclined upward, and was not quite so well concealed.

A third nest was found May 23; concerning this Doctor Avery wrote me as follows: "Found nest of Bachman's Sparrow today, on the slope of a hill covered with old-field pines, in an open space, under a fallen pine branch, some coarse grass growing near it. The parent fluttered from under my feet, which had disturbed the nest by striking the pine limb; my left foot touched the right side of the nest and shook the limb before the bird moved. She drew herself on the ground about a foot from me, and then, literally trembling, every feather quivering in her body, her tail spread and wings drooping, she ran along about ten feet from me. There she remained in open view beside a pine tree, till I at last discovered the nest under my very feet. During all this time she uttered not a sound. When I moved towards her she ran off through some thick weeds and briers, and finally, I pursuing, she perched upon the limb of a tree and began her '*seep, seep*,' till, to make identification sure, I reluctantly shot her."

On June 3 a fourth nest was found in a similar situation to the last, and as in former cases, the noise made by the alarm of the parent at the Doctor's presence attracted his attention and indicated to him where to search. In a letter dated June 4 he writes me regarding this find, as follows: "Yesterday I found still another nest of Bachman's Sparrow, but it contained four fledglings instead of eggs. I had been looking for nests of this bird for several hours when, pausing a few moments to look at a tree called here 'mimosa' (*Albizzia julibrissin*) and wondering by what

agency it had been brought to this unusual spot amongst the pines, my attention was attracted by a dark looking little object, quadruped or reptile as I at first supposed, running through the grass and uttering '*chäy, chäy,*' a sound more like the hissing of a snake than the scolding of a bird. I soon discovered my mistake, however, for the Sparrow, a Bachman's, remained about ten feet from me until I found its nest. Its entrance faced me, looking this time towards the north (the first three found all faced the west). It required a close search to find this nest, though I was standing not more than six feet from it when the peculiar hiss, as it were, of the parent bird and its rustling in the grass, startled me from my musings as to how the beautiful mimosa had reached that desolate spot amongst the pines. A peep into the cosy structure discovered the objects of my search; not four glistening eggs this time, but four outstretched reptile-like mouths and necks greeted my view. At my approach the old bird did not fly, but ran away a few feet from the nest and changed his scolding into an anxious '*seep, seep*' till I turned towards him, when he ran along ahead of me for some steps, then rose and perched upon a fallen tree top, chipping and turning about much after the manner of a Wren. Here, while I was examining him with my field glass, he surprised me by bursting into song, soft, sweet, and full of gladness as that which at times wells from his throat when the shadows of evening begin to creep over his sombre pines. It was the male bird that I surprised in the act of feeding his young, who thus expressed his satisfaction at having lured me from his nestlings."

On June 6 Doctor Avery found another nest of Bachman's Sparrow, containing two eggs. It was domed like those preously found, but the roof was so thin and poorly constructed, that the eggs could be seen through the latter, when standing over and behind the nest. The parent ran from the nest and the Doctor writes in this connection "I have yet to see one fly, as do other birds when disturbed at incubation. They all run, some showing greater alarm than others for the safety of their little thatched domicile." On June 23 a sixth nest, containing four nearly fresh eggs, of Bachman's Sparrow was found by an old negro, and brought by him to Doctor Avery, who writes as follows regarding it: " 'Doctor,' said he (the old negro) 'here am one dem bird nessis you tole me to fetch, ef I fin' any.' Sure

enough he had spread upon the bottom of the nest four eggs of this Sparrow. The old man had been ploughing up a field that had not been cultivated for years, and the oxen, said he, as well as himself, were startled by the bird running from the nest. He stated that he took the bird for a snake, and explained to me that he was at first afraid to go to the spot where the Sparrow was seen, and that he struck at the place first several times with his whip, till he discovered the parent and then her nest." This seems to fully confirm the theory that *Peucæa æstivalis bachmani* imitates, as far as possible, the movements and hiss of a snake, when disturbed on her nest, and tries to protect it thereby, to some extent at any rate.

A day afterwards the Doctor in passing within thirty steps of this last-mentioned nesting site, flushed four Sparrows which he took for early birds of this species, probably hatched in April. They rose like a covey of Bob-whites, all together, and with a whirr. There seems to be little doubt but that two broods are raised in a season, if not more. Bachman's Sparrow is mainly terrestrial in its habits, though when flushed it often alights in trees. Frequently, when suddenly disturbed, it rises with an audible whir.

Doctor Avery writes me that they sing at all hours of the day, but their song is especially striking and attractive at twilight, commencing with a prelude of some sweet, soul-stirring sounds, then changing to a trill, louder and more melodious than that of the Field Sparrow. This prelude is varied, and relieves the song of monotony, the little musician seeming to endeavor to make himself as entertaining as possible by frequent changes in the introductory notes of his strain.

In order to show the radical difference in the structure of the nest of *Peucæa æstivalis* proper and *Peucæa æstivalis bachmani*, I will state that a nest of the first-mentioned species, taken near Gainesville, Florida, on May 21, 1887, by Mr. Frank M. Chapman, a reliable and well-known ornithologist, containing four eggs and positively identified, the female having been shot, and which is now in his collection (No. 858), a typical *P. æstivalis*, is thus described by him in a letter to the writer.

"This nest was placed beneath a scrub palmetto, a growth which everywhere here covers the ground, and was constructed

almost entirely of fine dry grasses. It was well made and quite compact, and held well together when lifted from the ground. It was not arched over in any way, was perfectly round, with the sides or rims everywhere of equal height, in fact it was a symmetrical nest and well-proportioned." The eggs, of which three are now before me, kindly presented to the National Museum collection by Mr. Chapman, are pure white in color, slightly glossy, and rounded ovate in shape. They measure as follows. No. 23,042 Nat. Mus. Coll., .71×.61, .74×.61 and .71 ×.60 inches. The eggs of *Peucæa æstivalis bachmanii*, all collected and presented to the National Museum by Dr. Wm. C. Avery, are likewise pure white in color, with less gloss than those of the preceding species, more of a dead white. They vary in shape from a rounded ovate to ovate, and measure as follows.

No. 23,611, taken May 8, 1888, nearly fresh when taken, measures as follows: .72×.56, .75×.55, .72×.55, .71×.55 inch.

No. 23,622, a single addled egg, found May 9, measures .71× .60 inch.

No. 23,626, taken June 23, eggs nearly fresh, measures .76× .60, .76×.61, .74×.60, .76×.62 inch.

No. 23,628, taken June 6, measures .79×.59, .76×.58 inch.

The last set, No. 23,647, taken June 23, measures .75×.57, .75 ×.60, .77×.61, .76×.61 inch.

The average measurement of the eggs of *Peucæa æstivalis bachmanii* is about .74×.60 inch.

Doctor Avery believes that Bachman's Sparrow is only a summer resident in the vicinity of Greensboro, Alabama, arriving early in the spring from a warmer latitude. He never met with it in winter, although a few individuals may spend the winter there.

NOTES ON THE BIRDS OF FORT KLAMATH, OREGON.

BY DR. J. C. MERRILL, U. S. A.

With remarks on certain species by William Brewster.

[*Concluded from p. 262.*]

Coccothraustes vespertina.—A common resident. Several large flocks arrived from the south early in March, and smaller ones were seen until the middle of May, after which only pairs and single birds were observed. During the spring I obtained specimens at short intervals, and from careful dissections of them am convinced that in this vicinity the bird is a late breeder, not depositing eggs before the latter part of June or the first of July. At this time they are generally to be found in the largest firs, and in these trees, rather than in pines, I think they build, at least about Fort Klamath. Indeed, I have twice watched pairs carrying some building material into a huge fir, but was unable to locate the nests exactly and, even if I had, should probably have been unable to get to them, great as the inducement would have been.

Their note is a loud whistling call that may be heard at a considerable distance, and which is often repeated. In winter the crops were filled with seeds and crushed buds, and often fine bits of gravel; in summer insects, and especially caterpillars, were generally found.

It is rather difficult to prepare good specimens of this Grosbeak, for the skin is very thin, tears easily, and many feathers drop out; when one is shot, and in falling happens to strike a branch, so many feathers are generally knocked out that it is not worth skinning. In winter, when there is snow on the ground, good specimens may be obtained by shooting only such birds as will have a clear fall from the branch they are on into soft snow.

There is considerable variation in the color of the bill, and this is independent of sex; in some the entire bill is a clear light apple-green, scarcely or not at all tinged with yellow; in others the maxilla is pale yellowish tinged slightly with green, the mandible being horn color, tinged with greenish yellow only at the tip and cutting edge, and there are many gradations between these extremes. I have seen none in which the bill was "dusky at the base," as stated in 'History of N. A. Birds,' and which is probably the result of drying.

Carpodacus purpureus californicus.—A single specimen killed March 1, one of the next species being also obtained by the same discharge into a small flock which had passed the winter in the valley.

Carpodacus cassini.—Cassin's Purple Finch appears to be a resident species, rare in winter, and arriving irregularly in spring in advance of the general migration of the species, after which it becomes very common.

Single birds were found April 1, in deep pine woods, their loud and beautiful song attracting attention to them as they perched singly on the tops of high dead trees; on this date a male, still in immature plumage, was obtained with difficulty. They did not become common until May 13, when they suddenly appeared in considerable numbers. The nests are placed near the tops of young firs and pines.

Loxia curvirostra stricklandi.—Rather common resident, breeding about the Fort and throughout the mountains. Though not shy they were restless, often taking long flights, and were not easily shot. [The single specimen taken by Dr. Merrill is inseparable, as far as I can see, from Colorado and Arizona skins. For remarks on the latter *vide* Bull. N. O. C., Vol. VIII, pp. 160, 161, and Auk, Vol. III, pp. 260, 261.—W. B.]

Acanthis linaria.—Common during the winter, many remaining till about the first of May.

Spinus ——— .—About the middle of August several families of a species of Goldfinch came around the buildings in the Fort, but I was about leaving and was unable to secure any of them for identification. They were very likely *S. tristis*, as this species is recorded by Dr. Mearns as occurring here. A few days later I found *S. psaltria* very common near Ashland on the other side of the range.

Spinus pinus.—Common resident, breeding abundantly in the surrounding mountains.

Poocætes gramineus confinis.—Common, arriving about the first week in April. Unlike my experience in Montana and other parts of the West, the Bay-winged Bunting is not so numerous here as is the Savanna Sparrow.

Ammodramus sandwichensis.—A male taken April 26, the only one seen. It was in a meadow near the marsh, and as it was flushed at once attracted attention on account of its large size as compared with the common form, which was very common in the same locality. [The single specimen sent me by Dr. Merrill seems to be typical.—W. B.]

Ammodramus sandwichensis alaudinus.—Very common summer visitor. [A young ♀ in first plumage, taken July 18, differs from the corresponding stage of *A. s. savanna* in being very much grayer, especially above, where the light edges of the feathers are grayish white with scarce a tinge of buffy or brownish. The dark streaks on the underparts are also fewer and more restricted.—W. B.]

Zonotrichia intermedia.—Common spring and fall migrant. *Z. leucophrys*, given by Dr. Mearns, I did not obtain.

Zonotrichia coronata.—This is much the most common of the Zonotrichias during the migrations, associating with the preceding species and with the Passerellas. It arrived in the spring a little later than *Z. intermedia*, but both species were common by the latter part of April. The song of *coronata* was first heard on May 11. Probably a few remain to breed, but I have not observed any of the genus at that season. They begin to return early in August.

Spizella socialis arizonæ.—First seen May 4, and common ten days later; breeds abundantly.

Spizella breweri.—Rather rare and local, but a few may be found in open brushy plains among sage and greasewood. The exquisite song of this species is utterly unlike the *Coturniculus*-like lisping trill of S. *pallida*, and is most often heard about twilight and dawn.

Junco hyemalis oregonus.—None were observed during the winter. A small flock arrived March 6, after which it soon became extremely common, but comparatively few remained to breed.

Melospiza fasciata heermanni.—A few pass the winter in dense thickets bordering the smaller streams, along the margin of which it finds an abundance of food when snow covers the ground. Migrants return early in March, and it soon becomes common, but is at all seasons closely confined to the brush near water. [The five Song Sparrows (including one in first plumage) taken by Dr. Merrill seem to be nearer *heermanni* than to any other form, although they incline somewhat to *guttata* and *montana* also. They are evidently intermediates connecting at least two and perhaps all three of the subspecies just mentioned.—W. B.]

Melospiza lincolni.—A single specimen, shot March 14, was with a troop of Mountain Titmice in a pine tree, the ground being still covered with snow. The species was not again observed until May 5, when a female was taken. Breeds not uncommonly among the willows bordering many of the valley and mountain streams, when its sweet, somewhat wren-like song is often heard.

Passerella iliaca unalaschcensis.

Passerella iliaca megarhyncha.—Both these forms occur as common migrants. While it is probable that the latter may breed in this vicinity, I obtained no evidence of its doing so.

Pipilo maculatus oregonus.—A pair seen and the male secured March 7, the snow being still deep. These Towhees seem to be decidedly rare about the Fort as but one other specimen was seen during the spring and summer, although there is much cover apparently just suited to them. [The male above mentioned has the rufous of the sides about as in Rocky Mountain specimens of *megalonyx*, but the white markings of the back, wings and tail are nearly as restricted as in true *oregonus*. Typical examples of the latter seem to come only from the coast of Washington Territory and northern Oregon, all the birds that I have seen from California being very like this Klamath specimen.—W. B.]

Pipilo chlorurus.—Rather common during summer, and not so closely confined to brush and thickets as are others of the genus. Besides its pleasant song and the alarm note, there is another, rarely heard and apparently only when the bird's curiosity is excited without alarming it; this is a loud and distinct *mew-wée*, which is very characteristic.

Habia melanocephala.—A male killed June 11, the only one seen.

Passerina amœna.—Quite common, arriving about May 20, and breeding among willows and manzanita bushes.

Piranga ludoviciana.—Arrives in the spring about the first of May, and soon becomes very common among the firs and pines, in which the brilliant plumage of the males shows to great advantage. The song is much like that of the Robin, but is more rapidly given. Here this Tanager is

very tame and unsuspicious; it is an expert flycatcher, and also feeds much on the ground. The nests are usually placed on the horizontal branch of a fir or pine, sometimes but a few feet from the ground, at others fifty or sixty feet above it. One nest found just outside the Fort was in a young aspen about six feet from the ground; the foundation was a mass of dry twigs, the lining being of rootlets and horsehairs; the internal diameter was three, the depth one and a half inches. On June 20 the full complement of eggs was three, averaging .91 × .62 inches; the ground color is a clear green, sparingly spotted with brown which in one specimen forms a ring at the larger end.

Petrochelidon lunifrons.—Common, nesting abundantly in the buildings about the Fort.

Chelidon erythrogaster.—Common.

Tachycineta bicolor.—Arrived April 4 in small flocks, and was common by the middle of the month; breeds.

Tachycineta thalassina.—Very common at the outlet of Diamond Lake early in August. Not noted in the immediate vicinity of the Fort, but undoubtedly occurs there.

Stelgidopteryx serripennis.—A few pairs breed in the banks of the streams near the Fort, but there are few suitable places, as the edges of the streams are usually low and grassy. Nests examined June 18 contained half-fledged young; the burrows were about two feet in length, and were much larger than those dug by the Bank Swallow.

Ampelis cedrorum.—Three seen on May 25.

Lanius ludovicianus excubitorides.—Seen occasionally during autumn and early winter. [No specimens taken. The form should perhaps stand as *L. l. gambeli.*—W. B.]

Vireo gilvus swainsoni.—The Western Warbling Vireo arrives about the middle of May, two weeks later than does the next species, and both are very abundant during the summer; nowhere have I found any Vireo so common as are these species at Fort Klamath. They are readily identified by their notes, which are characteristic and quite unlike. The present species is partial to aspens, almost every group of which is the home of one or more pairs.

Vireo solitarius cassinii.—Unlike most Vireos this one, as observed at Fort Klamath, shows a marked predilection for pines and firs, and is found almost everywhere among these trees. It is also found, but much less frequently, in aspen groves with the Warbling Vireo. The nests are built in low manzanita or buck-brush bushes that grow throughout the pine woods.

Helminthophila celata lutescens.—First seen and several specimens obtained on May 5; they soon became common, and rapidly passed on to the north, though a few remained to breed.

Helminthophila ruficapilla gutturalis.—First taken May 26. The loud song of the males betrays their presence and abundance, but they are restless, shy, and very difficult to shoot. The song has some resemblance to that of the Yellow Warbler, but once recognized it cannot be mistaken. This species is quite common during the breeding season, preferring

groves of aspens with pine trees growing among them. They feed mostly among the aspens, searching for insects after the manner of their allies; at intervals they fly up into the pines, but soon descend to renew their search for food, sometimes visiting the wild currant bushes, but rarely touching the ground. When alarmed, as they very easily are, the males move rapidly through the trees, often flying a hundred yards or more at once, and were it not that their constant song indicates their movements, it would be impossible to follow them. I have frequently followed one for half an hour or more before I could even catch a glimpse of it, and my pursuit of any particular one was more often unsuccessful than the reverse. Sometimes on being alarmed one would at once fly up into a lofty pine, and far out of reach of small shot would remain quietly on one branch, yet singing often, as long as I remained in the vicinity, and this it would do whenever I visited its especial haunt. On the whole the habits of the Calaveras Warbler in this locality are very characteristic, and in a somewhat extended field experience I have never found a land bird more wary and difficult to shoot. But as soon as the young leave the nest this extreme shyness disappears, and the parents are readily approached and observed as they busily search for food for their young family.

Dendroica æstiva morcomi.—Common, arriving early in May. One nest was found in a young pine, although many aspens, in which they generally build, were growing near.

Dendroica auduboni.—Extremely abundant during the migrations. A few males were seen at Modoc Point on the 8th and 9th of April, and at the Fort on the 15th; by the 20th they were quite plentiful. A second "wave" composed of both males and females, which latter had not previously been seen, arrived about the 4th of May, when they suddenly became more abundant than ever, bringing *D. æstiva morcomi* and *H. lutescens* with them. By the middle of the month there was a noticeable diminution in their numbers, and ten days later they were rather uncommon, but a few pairs remained to breed about the Fort and in the surrounding mountains.

Besides the common song Audubon's Warbler has another, quite different and more rarely heard, and which caused the sacrifice of several specimens to identify the species; this seems to be reserved for the middle of the day when, after a satisfactory morning's search for insects, the bird sits quietly for an hour or more on the same branch, occasionally uttering the notes referred to. On two or three occasions I have heard a very sweet and peculiar song by the female, and only after shooting them in the act of singing could I convince myself of their identity.

Dendroica townsendi.—On the 14th of May I shot a male that was searching for insects near the top of a fir.

Dendroica occidentalis.—A full-plumaged male taken May 12; the bill of this specimen was dark olivaceous, not "jet black" as stated in 'History of N. A. Birds.' It is probable that this and the preceding species, and also *D. nigrescens*, are not uncommon here during the migrations, but their habit of frequenting the upper third of the highest firs renders their collection a matter of great difficulty, and the height is too great to identify them by sight. During the month of June I frequently heard

and saw a bird at the head of Fort Creek that was certainly a *Dendroica*, and doubtless one of these three species, but it kept in the tops of the highest firs and pines and I was unable to shoot it; the song was something like that of a Chipping Sparrow, but harsher and more run together.

Geothlypis macgillivrayi.—First seen May 11, and soon became abundant, many remaining to breed. The song of the male is characteristic and rather sweet, unlike that of *G. philadelphia* and yet having a certain resemblance to it.

Geothlypis trichas occidentalis.—The habits of the Western Yellowthroat in this vicinity, as regards its favorite resorts, are quite unlike what I have elsewhere observed. Though the numerous streams offer it the same rank undergrowth along their swampy edges that it in other places prefers, yet it is rarely seen in such situations. A few are found among the low willows growing in the marsh, but its favorite haunt, and one in which it is very common, is among the tules in company with Marsh Wrens and Yellow-headed Blackbirds. During the nesting season the males frequently mount a few feet in the air, and exactly imitate the eccentric movements of the Yellow-breasted Chat.

Sylvania pusilla pileolata.—Several seen May 6, and extremely common a few days later. Breeds in considerable numbers in the swampy willow thickets along Wood River and Fort Creek, the loud, sharp notes of the males indicating their abundance.

Anthus pensilvanicus.—Common during the migrations.

Cinclus mexicanus.—Not uncommon resident.

Troglodytes aëdon parkmanii.—Common, but less so than I have found it in many parts of the West. [The single specimen in the Klamath collection must apparently be referred to *parkmanii* as now restricted, although its coloring is darker and browner than in *T. aëdon* instead of "lighter or more tawny" as should be the case withtypical *parkmanii*, according to Mr. Allen*.—W. B.]

Troglodytes hiemalis pacificus.—Common during autumn, and in winter until the commencement of the January storms, the snow soon covering its favorite brush piles and manzanita scrub, and probably driving it south; but I did not detect it in the spring on its way north. A pair were seen July 6 near the head of the east fork of the Des Chutes River, at an altitude of about fifty-six hundred feet. [Dr. Merrill's specimens are typical *pacificus*.—W. B.]

Cistothorus palustris paludicola.—Very common in summer among the tules in the marsh, and a few pass the winter in the same locality. In August several pairs with young were found among the rank marsh grass at the head of Diamond Lake at a height of over five thousand feet. The breeding habits here are much as they are in the East; the nests were usually among tules, more rarely among flags.

Certhia familiaris occidentalis.—In no part of the West have I found the Creeper so abundant as at Fort Klamath. During the winter every troop of Mountain Titmice, Kinglets, and Pygmy Nuthatches, and these

* See the Auk, Vol. V, p. 76.

were very numerous, was accompanied by two or three Creepers. In April they gradually became less common, many apparently going with the Nuthatches into the mountains. Several pairs bred in the immediate vicinity of the Fort, however, and during the winter I found several of their characteristic nests, hidden by loosened scales of bark, usually on pines but once or twice on aspens. On June 6 I noticed a pair feeding fledged young; one of the latter was at the entrance of a Woodpecker's hole in a pine tree about sixty feet from the ground, and was frequently visited by the parents with food. It is probable that in this cavity the brood passed the night, for I hardly think that the nest was in it, and the other young birds were in the surrounding pines. On the same day another pair were seen several times to pass under a large scale of bark on a dead pine at a height of about fifty feet; their nest was doubtless there, but it was inaccessible.

[The characters by which it has been proposed to separate the Creeper of the Pacific Coast region, under the name *occidentalis*, are strongly and uniformly presented by the series of eighteen specimens taken by Dr Merrill at Fort Klamath. Indeed, as Mr. Ridgway has asserted in reinstating the subspecies in the Manual (pp. 557, 558), *occidentalis* "differs quite as much from the typical (Eastern) bird as does the Mexican form, to which it cannot be referred."—W. B.]

Sitta carolinensis aculeata.—Common during winter, but breeding more commonly in the higher mountains than about the Fort.

Sitta canadensis.—About as common as *S. aculeata*.

Sitta pygmæa.—Very common during winter, the majority going higher up the mountains to breed, but to no great distance, and at all seasons it is more abundant near the Fort than either of the other Nuthatches. Dr. Coues, in his 'Birds of the Colorado Valley,' says that the iris of this species is black; in all the specimens I have examined the iris was brown. Here, as in other parts of the West, its habits are quite unlike those of *aculeata* and *canadensis*, a dozen or more being generally found together, noisy, restless, and actively searching for food near the extremities of pine and fir branches, often picking off insects while fluttering and poised in the air.

Parus gambeli.—Perhaps the most common resident species at Fort Klamath, and in winter seldom out of sight or hearing. No form of either *rufescens* or *atricapillus* was obtained, though carefully searched for. The Mountain Chickadee has all the habits of its allies, with perhaps a greater variety of notes. During the winter its hoarse *dee-dee* is the most common, but as spring approaches this is less frequently heard, being partially replaced by a variety of others. The most characteristic spring note, which is occasionally heard throughout the year, is *pe-wee*, as clear, soft and beautiful as that of the Wood Pewee, and which it much resembles. Early in April they begin to separate in pairs, but small flocks may be seen until May. As the nesting habits and eggs of this Tit are not very well known, I will describe the five nests that I found. The females usually sit very close, and when disturbed keep up a constant hiss-

ing, so much like that of some snakes that no prudent squirrel would venture to enter the hole.

A nest found May 25 was in an old Woodpecker's hole in an aspen stub about ten feet from the ground. Five fresh eggs, averaging .62 by .47 inch, lay *in* a thick bed of tufts of hair from some small mammal.

A set of six fresh eggs, taken June 1, average .65 by .51 inch. The nest was at the bottom of a *Colaptes* excavation in a partially dead aspen, the entrance being large enough to admit my arm. The usual thick mass of fur was at the bottom, and *in the middle of this mass*, as in the first nest, were the eggs. In the succeeding cases incubation had begun and the eggs were upon the nest lining, exposed as usual; it may be that this species is sometimes in the habit of burying its eggs in the lining until ready to sit.

Six eggs were taken June 2 from a nest in a rotten pine stump about three feet from the ground; there had been a natural opening in the bark and stump, and the cavity had been enlarged and shaped by the birds. The wide bottom of the excavation had been covered with a thick level bed of fur in which was a sharply cupped cavity for the eggs, which average .63 by .48 inch.

A fourth nest, found June 6, was in a Woodpecker's cavity in a pine stump about three feet from the ground. As I approached, the female appeared for a moment at the entrance of the hole, but returned to the nest, from which I had to lift her after splitting open the stump. The eggs were six in number, and average .64 by .47 inch.

A nest found July 4, at Corral Spring, was in a pine, and about six feet from the ground; the eight eggs average .66 by .50 inch.

A few feet from this nest was another of the same species containing young.

Of these five sets of eggs two are entirely unspotted; in two, one or two eggs are pure white, the others having faint light brown spots, mostly at the larger end; in the other set two of the eggs are quite unmarked, but the others have distinct reddish spots.

Psaltriparus ——— .—A Least Tit was rather common during the fall migration in August, but was not observed in spring. Although no specimens were obtained, I think that all of those seen were either *minimus* or *californicus*. Mr. Henshaw, however, found *P. plumbeus* "among the barren piñon hills near Carson City," Nevada.*

Regulus satrapa olivaceus. — Very common in autumn, and in winter until the middle of January, when stormy weather began and continued with scarcely an intermission until March. None were then seen until March 18, but they soon became as abundant as before, and so continued until about the middle of April; none were seen in the vicinity of the Fort after April 25. In July and August this Kinglet was found quite abundant in the mountains above 5500 feet, at that height entirely replacing the next species. The males were still in full song, and with the females

* Wheeler's U. S. Geog. Surv. Rep. for 1879, p. 288.

were feeding their young. [Two specimens, both males, are nearest *olivaceus*, but still not typical of that form.—W. B.]

Regulus calendula. — Very common during the migrations, arriving March 21 and numerous three days later. They continued in great abundance for about a month, when there was a diminution in their numbers. Many pairs breed around the Fort, apparently placing their nests in dense firs. On July 9, at Beaver Meadows, a female was noticed feeding six scarcely fledged young that were sitting close together on a dead twig of a pine tree, in which the nest was probably placed although I could not find it. In July and August this species was found in abundance in the mountains north of the valley up to a height of about five thousand feet. Very few of either species were seen in the next five hundred feet, above which only *olivaceus* occurred. These heights were determined on several mountains by barometric observations, and the distinct range of the two species was very noticeable.

Myadestes townsendii. —A male taken May 3, and another seen two days later. A few were noticed in July and August in the mountains, where they probably breed. No song was heard. In flight and attitudes this species reminded me much of a Bluebird.

Turdus ustulatus.—Arrived about May 20, a few nesting near the Fort and in suitable situations in the mountains. Its loud, sweet song was frequently heard about sunrise and sunset, but the birds were shy and difficult to shoot. A nest found June 8, containing four fresh eggs, was in a dense willow thicket, and placed on a horizontal branch about two feet from the ground.

Turdus aonalaschkæ.—A female taken April 29. Not again seen until May 11, when after a few days of cold and stormy weather it was found abundantly. They were silent, and rapidly passed on to the north, being seen for about a week only. The basal half of the mandible varies from pale flesh color to a decided yellow, but this is irrespective of sex. [Four spring specimens (one taken April 29, the other three May 11) are well within the maximum limits of size ascribed to *aonalaschkæ* (their wing measurements are: ♂♂, 3.50, 3.55, 3.55; ♀, 3.23 inches), but their coloring is very much paler than in any of the California examples before me and, in fact, quite as gray as in average Colorado specimens of *auduboni*. – W. B.]

Merula migratoria propinqua. — Rare during the winter. Arriving March 7, it became common in three or four days. By the first of May many nests contained their full complement of eggs.

Hesperocichla nævia.— From various sources I learned that this bird was rarely seen in autumn, but that in March it was generally very abundant and tame, coming about the houses in the Fort as plentifully and as fearlessly as the common Robin. I saw none in autumn, and in the spring observed a single specimen only, a female, which I shot April 13, although at both seasons I kept a sharp lookout for the bird.

Sialia mexicana.—First seen April 4, and three days later was common in small flocks. Breeds about the Fort in greater numbers than does the next species.

Sialia arctica. — Common migrant; arrived March 27 in considerable numbers. Breeds, but very sparingly, near the Fort; higher in the mountains it is common, and there replaces *mexicana*.

Tringa minutilla. — This species was accidentally omitted from the first instalment of the present paper. I took a single specimen July 10.

NOTES ON THE HABITS, NESTS AND EGGS OF THE GENUS *GLAUCIDIUM* BOIE.

BY CAPT. CHAS. E. BENDIRE.

THE GENUS *Glaucidium* was instituted by Boie in 1826. Only two species and one additional subspecies are found within the limits of the United States, as far as is known at present. These are

Glaucidium gnoma Wagler, the PYGMY OWL.

Glaucidium gnoma californicum Sclater, the CALIFORNIA PYGMY OWL.

Glaucidium phalænoides (Daud.), the FERRUGINOUS PYGMY OWL.

The true *G. gnoma* is found in Mexico, throughout the middle province of the United States, north to Oregon (Fort Klamath and Camp Harney) and Colorado. *G. gnoma californicum* is restricted to the Pacific Coast proper, between San Francisco Bay and British Columbia, inclusive. These little Owls, I believe, are resident throughout the year wherever found.

The general habits of the Pygmy Owl are by this time pretty well known, and there remains little for me to add to their life history, that is really new. It is a well-established fact, that it is quite diurnal, and hunts its prey, to a great extent at least, during the daytime, its food consisting not alone of grasshoppers and other insects, as some of the earlier naturalists surmised, but also of birds and the smaller rodents, some of the latter considerably heavier than itself.

I presume that it is not at all uncommon throughout the entire mountainous and timbered portions of the West; but from its small size and retiring habits, generally being perched in dense evergreen trees, it is not often noticed by the naturalist, and usually only by accident. I have taken it personally in the Blue Mountains in Washington Territory, and in several places in Oregon, but have never met with more than one at a time. My specimens were, with but a single exception, all found in or near the pine timber. While hunting Sage Fowl (*Centrocercus urophasianus*) on the morning of Feb. 5, 1875, in the vicinity of Camp Harney, Oregon, I shot a female Pygmy Owl at least five miles from the nearest timber. It was perched on a large bowlder, lying at the foot of a basaltic cliff from which it had broken off, and allowed me to approach quite closely. It had just about finished its breakfast, furnished by a Western Tree Sparrow (*Spizella monticola ochracea*), as indicated by the feathers scattered about and on the rock. It was in prime condition and exceedingly fat.

The first of these little Owls, coming under my observation, was shot by Sergt. Smith, who used frequently to go gunning with me. On the morning of Dec. 14, 1874, we were out hunting Sooty Grouse (*Dendragapus obscurus fuliginosus*) along the southern slopes and amongst the foothills of the Blue Mountains, a few miles north of Camp Harney, and had been quite successful. The Sergeant was walking along the edge of a mesa (tableland), while I was about a hundred yards below him, hunting amongst some serviceberry bushes growing about half way up the slope of the hill, and in which Grouse were usually found feeding at that time of the year. Hearing the Sergeant fire (he could not be seen from where I was at the time), I called to him and asked what he had shot. His reply seemed at the instant rather strange to me. It was "Captain, I shot a baby Owl, riding on a rat; I have got them." Had I not known the Sergeant to be a strictly sober man, not at all addicted to drinking, I should have readily agreed with him, that he had them, and laid it to over indulgence in something stronger than water, on that particular morning; but when I climbed up to where he was standing, the matter was fully explained.

It appears that a tall old pine tree had been uprooted years ago by some of the heavy windstorms that occasionally sweep

over that region, and the roots of it were lying partly under a younger and bushy tree of the same species, that was taking the place of the older one in the course of nature. The massive trunk of the old tree was free from limbs for about forty feet, and was slowly but surely decaying. A large-sized pocket gopher, who perhaps found a congenial home amongst the roots of the old tree, on hearing the noise the Sergeant made in his approach, had climbed up on to the trunk of the tree, possibly to get a good view of the intruder and to warn the balance of his family, when, quick as a flash, a little Pygmy Owl, that had been securely hidden among the branches of the growing pine, dropped down with unerring aim on its victim and fastened its sharp little talons securely into the astonished gopher's back. Sergeant Smith's attention was drawn to the performance by a squeak from the gopher which, in trying to escape, ran along on top of the fallen pine almost its entire length, making rather slow progress however, hampered by the Owl as it was, when the Sergeant fired, killing both. During this time, nearly a couple of minutes, the Owl sat upright on the gopher's back, never letting go its hold an instant, twisting its head nearly off the body in trying to keep an eye on the Sergeant, who was rapidly approaching, but apparently showing no uneasiness whatever. He told me that the whole thing was done in such a business-like manner, that it was evidently not the first ride of the kind this little Owl had so taken. It held on to its prey even in death. I published a short account of this occurrence at the time, in the Proceedings of the Boston Society of Natural History, Vol. XVIII, Oct. 6, 1875. Both specimens are in the National Museum Collection.

I also met with the Pygmy Owl on several occasions at Fort Klamath, Oregon. I remember quite distinctly seeing one (presumably the same individual) several times at various hours of the day sitting patiently, but wide awake, on a single long and slender willow branch overhanging Fort Creek, but a little distance from the Post. I refrained from shooting it, as I suspected it nested in the vicinity, and it would also have been rather difficult to secure. I can't say so positively, but think it used that particular perch for no other purpose than to catch frogs. The willow overhung a marshy, reed-covered spot, where the water was rather shallow, and which seemed to be a

favorite resort for numbers of these batrachians. Small birds, of which there were numbers about in the immediate vicinity in the willow thickets bordering the stream, did not seem to resent the presence of the little Owl, and paid no attention whatever to it.

Its call notes may often be heard during the early spring months while mating, and usually shortly after sundown. Its love notes are by no means unmusical. They resemble to a certain degree the cooing of the Mourning Dove (*Zenaidura macroura*), like '*coohuh, coohuh*,' softly uttered, and a number of times repeated. Although I have not positively seen this bird while in the act of calling its mate, I am quite certain that the notes emanated from this little Owl and no other. I am familiar with the notes of the Acadian and Kennicott's Owls (*Nyctala acadica* and *Megascops asio kennicottii*), the only other of the small Owls at all likely to be found there, but their notes are different, and they were not met by me while stationed at Fort Klamath, Oregon.

Mr. Henshaw found the Pygmy Owls quite numerous in the southern Rocky Mountains, and states that they are rather sociable in disposition, especially during the fall months. He says that he has imitated their call and readily lured them up close enough to be interviewed. (See Auk, Vol. III, Jan., 1886, p. 79.) I am inclined to think that they are much more common there than further north.

In regard to the nesting habits of the Pygmy Owl, but very little is yet known, and as far as I am aware, but two nests, one containing eggs, the other young, have been taken.

Although mention is made in Baird, Brewer and Ridgway's 'History of North American Birds,' Vol. III, p. 85, that this Owl, according to J. K. Lord, lays two small eggs, white in color, early in May, I think the credit of the discovery of the nest and eggs of this species really belongs to Mr. George H. Ready, of Santa Cruz, Cala., who on June 8, 1876, found a nest containing three eggs, one of which was accidentally broken, in a deserted Woodpecker's burrow in an old isolated poplar tree, growing on the banks of the San Lorenzo River near Santa Cruz. The burrow was seventy-five feet from the ground. A short account of this find was published by me in the Proceedings of the Boston Society of Natural History, Vol. XIX, March

21, 1879, p. 132, and a somewhat fuller description of the same, by W. C. Cooper, can be found in the Bulletin of the Nuttall Ornithological Club, Vol. IV, April, 1879, p. 86.

The two eggs, of which drawings only are before me, are, according to these, ovate in shape, dull white in color, with a scarcely perceptible yellowish tinge. The surface is said to be quite smooth, and to have the appearance of having been punctured with a fine point over the whole egg. Judging from the drawings they are decidedly pointed for Owl's eggs, and perhaps somewhat abnormal in this respect. Their size is given as 1.18 × .90 and 1.17 × .87 inches. According to the latest classification these eggs would be referable to *Glaucidium gnoma californicum.*

During one of my absences from Fort Klamath, on official business matters, one of my men found on June 10, 1883, a burrow occupied as a nest by the true *Glaucidium gnoma*, which at the time it was first discovered must have contained eggs. The nest was not disturbed till the day after my return to the Post, June 25, when he showed it to me. The nesting site used was an old deserted Woodpecker burrow, in a badly decayed but still living aspen tree. It was about twenty feet from the ground. The cavity was about eight inches deep and three and a half wide at the bottom. This tree, with two others of about the same size, stood right behind, and but a few feet from a target butt on the rifle range, which had been in daily use since May 1, target firing going on from three to four hours daily. All this shooting did not seem to disturb these birds, for the first egg must necessarily have been deposited some two or three weeks after the target practice season began, but the strangest thing is that the Owls were not discovered long before, as two men employed as markers were constantly behind the butt in question during the firing and directly facing the entrance hole of the burrow. When the nest was shown me I had it examined, and much to my disgust found it to contain, instead of the much coveted eggs, four young birds from a week to ten days days old perhaps. I took these; two of them are now in the National Museum, the remaining two, in Mr. William Brewster's collection at Cambridge, Mass. The cavity was well filled with feathers of various kinds, and contained, besides the young, the female parent and a full grown Say's chipmunk (*Tamias lateralis*) that evidently had just been carried in, as

it was not touched yet. The cavity was almost entirely filled up by the contents mentioned.

Judging from these accounts, the only reliable ones I know of, it would appear that the Pygmy is one of the latest of the Owl tribe to begin nidification, and it is not at all probable that more than one brood is raised in a season, or that in both the instances mentioned the first set of eggs had been destroyed. The young Owlets, two of which I kept alive for several days, made a kind of chirping noise like a cricket. The number of eggs to a set is probably never more than four.

Glaucidium phalænoides *Daud.* FERRUGINOUS PYGMY OWL. — This widely distributed species was first described by Prince Max z. Wied in 1820. It inhabits the whole of tropical America (the West Indies excepted), and is found to the northward, along the southwestern border of the United States, occurring in southern Texas and Arizona. It was first added to our fauna by the writer, who took several in the heavy mesquite thickets bordering Rillitto Creek, near the present site of Camp Lowell, in the vicinity of Tucson, Arizona, in 1872. The first specimen was taken Jan. 24, 1872, showing that it is a resident throughout the year; other specimens were obtained during the following spring and summer. Unfortunately I was not an adept in taxidermy then; the skins made by me in those days looked as if they had passed through the jaws of a hungry coyote, and they were only useful in determining species. Like *G. gnoma*, this little Owl is quite diurnal in its habits. Its call, according to my own notes, is '*chu*, *chu*, *chu*,' a number of times repeated, and is most frequently heard in the evening. According to Mr. F. Stephens, its note is a loud '*cuck*' repeated several times as rapidly as twice each second. He further states that at each utterance the bird jerked his tail and threw back his head. Occasionally a low chuck, audible for only a short distance, replaced the usual call. Mr. Stephens's notes, come perhaps nearer the mark than my own; I know him to be an exceedingly careful, conscientious, and reliable observer. According to Prince Max z. Wied in Burmeister's 'Thiere Brasiliens,' Vol. II, 1856, p. 142, its call is said to be '*keck*, *keck*, *keck*.'

The best account of the life history of this little Owl, is found in the 'Journal für Ornithologie,' Vol. XVII, 1869, pp. 244, 245,

under 'Notes on the Natural History of the Birds of Brazil,' by Carl Euler.

According to this authority, small as the Ferruginous Pygmy Owl is, it has been known to carry off young chickens, and he was informed by the natives that it even attacked Jacú-hens (*Penelope*), a bird of greater size than domestic fowls. It was stated to him that the little Owl fastened itself under the wings of the latter, gradually tearing it to pieces, and wearing it out and eventually killing it. I am aware, from personal observations, that some of our small Owls are the peer, as far as courage is concerned, of the noblest Falcon ever hatched, but I should not quite care to father that story. Carl Euler says further that in captivity, when fed on birds, it always carefully removed all the larger feathers from the carcass, before beginning its meal. Also that it was not at all afraid of light, and that he met with it several times during bright sunshiny days, sitting on perfectly bare and leafless trees. He gives its call note as '*khiu, khiu.*' Apparently none of us mentioned here, agree on the call note of this Owl, and I leave it to the reader to take his choice.

Euler surmises that it rears two broods a season, one in October, the other in December. He met once in March, a family of four, two adult and two young, sitting close together on a limb of a tree, waiting, as he says, for twilight. The nest is said to be made in hollow trees; no mention is made of the eggs having been found, however, and I cannot find any description of them in any of the works accessible to me.

A nest containing two fully fledged young, found by me in an old mesquite tree in the spring of 1872, in a chaparral thicket near Camp Lowell, and referred to by me at the time as being that of *Micrathene whitneyi*, may possibly, and probably, have been one of this little Owl, as the Elf Owl seems to confine itself in its nesting sites to burrows in giant cactus (*Cereus giganteus ?*), so far as known.

An additional new subspecies of *Glaucidium* has recently been described in 'The Auk,' Vol. V, April, 1888, p. 136, by William Brewster, under the name of *Glaucidium gnoma hoskinsii* Brewster, Hoskins' Pygmy Owl, from the Sierra de la Laguna, Lower California, and which properly also belongs to our fauna. Nothing whatever is known respecting its habits as yet.

A SUMMARY OF OBSERVATIONS ON THE BIRDS OF THE GULF COAST OF FLORIDA.

BY W. E. D. SCOTT.

THE observations recorded in the following pages are based on work covering, in period of time, the entire winters of 1879-80, 1886-87, and 1887-88; the spring, summer and autumn of 1886, the spring and autumn of 1887, and the entire season of 1888 up to August 1, the date of this writing. All of these seasons have been spent at some point on the Gulf Coast of Florida south of Cedar Keys, and from that point to Key West is the area it is proposed to treat of. Reference will also be made to work done during January, February, and March, 1876, at Panassoffkee Lake in Sumpter County, and to several short trips inland to minor points.

Where information has been obtained through friends and fellow-workers in this region it will be noted as coming from such sources; and no information but such as seems absolutely reliable has been admitted into the pages that follow.

Colymbus auritus. HORNED GREBE.—During the months of December and January, winter of 1887-88, this species was abundant in large flocks in the Gulf of Mexico, off the coast of the Counties of Hillsboro and Pasco. These flocks were most numerous from about a mile and a half to three miles off shore. Single birds and pairs often came closer to the land. I have no records of the species from any of the fresh water ponds, some of which are very close to the coast, where *Podilymbus podiceps* is to be found very commonly.

Podilymbus podiceps. PIED-BILLED GREBE.—A common winter visitor, arriving early in the fall and remaining till late in March in numbers. I have notes of its occurrence in each of the months of June, July, and August, and though rare at this time of year, I think it will be found ultimately to breed in Hillsboro County. Most of the migratory birds assume full nuptual plumage before leaving for the north. The species is abundant in winter in both fresh and salt water at the several points I have visited throughout the State.

Urinator imber. LOON.—This species is common during December and January on the Gulf from Cedar Keys at least as far south as Tampa Bay. Though most of the birds seem to prefer the waters of the Gulf, yet I have many notes of their occurrence on the Anclote River, several miles above its mouth. The birds that I have examined from these localities are mostly young birds of the year, and I have never seen an individual from these points in full plumage.

Urinator lumme. RED-THROATED LOON.— Of not infrequent occurrence in the colder months, December and January, near the mouth of the Anclote River. I also took one near Clearwater Harbor in February, 1880.

Larus argentatus smithsonianus. AMERICAN HERRING GULL.—A rather common winter visitor on the Gulf Coast. I observed the species on May 21, 1886, just outside of Clearwater Harbor on the Gulf. (See Auk, Vol. IV, No. 4, October, 1887, p. 274.) Most of the individuals observed or taken have been in the gray plumage.

Mr. John W. Atkins of Key West writes me: "In the winter and early spring the Herring Gull is very plentiful in the harbor," referring to the harbor at Key West.

Larus delawarensis. RING-BILLED GULL.— A rather common winter visitor on the Gulf Coast, and I have noticed it in numbers near Clearwater Harbor as late as May 21, 1886. (See Auk, Vol. IV, No. 4, October, 1887, p. 274.) The birds observed have been about equally divided in regard to immature and full plumage.

Larus atricilla. LAUGHING GULL.— An abundant fall, winter, and spring bird on the Gulf Coast, and breeds, but so far as I am aware, not abundantly. See notes made in May at Charlotte Harbor, Auk, Vol. IV, No. 4, October, 1887, pp. 274, 278, 279. Mr. Atkins of Key West tells me that this Gull is a common resident and breeds both at Key West and in the vicinity of Punta Rassa. From the same source I learn that this species breeds at the Dry Tortugas.

Larus philadelphia. BONAPARTE'S GULL.—This species is not common on the Gulf Coast of Florida so far as I am aware. I took a single individual at Panassoffkee Lake, in Sumpter County, in the winter of 1875-76, and found a few at the mouth of the Withlacooche River in December and January, 1879-80. I have no record of it in the immediate vicinity of Tarpon Springs, and the only record south of that point is of a single bird, apparently immature, taken at John's Pass, Hillsboro County, December 17, 1886.

Gelochelidon nilotica. GULL-BILLED TERN.—Apparently rare on the portions of the Gulf Coast visited. The only record that I am aware of is that of a male in winter plumage taken at John's Pass (see Auk, Vol. IV, No. 2, April, 1887, p. 133). Also see 'Mammals and Winter Birds of East Florida,' J. A. Allen, Bull. Mus. Comp. Zoöl., Vol. II, p. 366, April, 871.

Sterna maxima. ROYAL TERN.—A resident species, more abundant in winter, and breeds commonly. On the low sand keys at the mouth of Tampa Bay the breeding season begins about the middle of May, and is at its highest three weeks later.

Sterna sandvicensis acuflavida. CABOT'S TERN.—A migrant, and very abundant as far north as Clear Water. The birds are not to be found as far north as Tampa Bay in the winter, and if they occur on this coast at all at that season it is much to the south of Charlotte Harbor. I found the first migrating north at Gasparilla Key early in May, and I have

reason to believe that they arrive at this point about May 1 to 5, becoming common in a few days.

At John's Pass I found them in great numbers about June 1, 1886. The percentage of adult birds to those in immature plumage at this time of the year is quite remarkable. On June 3, 1886, at John's Pass I took a series of fifty-nine of these birds and saw many hundreds more of them. Of the fifty-nine only six were in full plumage, and though all of the others were at least a year old, not a few of them appeared from dissection as if they would not have bred till at least another season. They breed in large numbers on the sand beach near the point above indicated in June, and are still abundant in the vicinity till about the last of September when they begin to disappear. On September 20, 1886, I secured an additional series of the species at the point in question. The birds had by that time all assumed winter plumage except the young birds of the year. These were in seven cases still in the *first* plumage, and not quite fully grown, indicating that probably more than one brood is raised, and showing how late in the summer the last broods are hatched out.

Since writing the above, Mr. Atkins of Key West tells me that Cabot's Tern is quite common in Key West Harbor in winter.

Sterna forsteri. FORSTER'S TERN.—A rather common winter resident (see Bull. Nutt. Orn. Club, Vol. VI, No. 1, January, 1886, p. 21), and the species was observed by me at Casey's Pass as late as May 28, 1886, still in winter plumage. (See Auk, Vol. IV, No. 4, Oct., 1886, pp. 274, 278.) Later, June 3, of the same year, I found the species abundant at John's Pass and still in flocks, many of the birds being in winter plumage. I am inclined to think that the species will be found to breed in small numbers near this locality on the Gulf Coast. Mr. Atkins took the species commonly at Punta Rassa on July 18, 1886. Mr. Atkins also finds this a common species at Key West in the winter.

Sterna hirundo. COMMON TERN.—The Common Tern is an abundant bird during the spring, but I have no records of its occurrence in the winter months north of Key West. During May and the early part of June the birds were abundant in flocks from Boca Grande, the main inlet to Charlotte Harbor, to John's Pass. The majority of the birds were in the plumage of the first year, and had the peculiar marking of that phase of plumage, a prominent black or dusky band just back of the bones of the forearm. About one bird in ten was in full plumage or assuming it, and a few birds taken were moulting. Mr. Atkins of Key West has found this species not uncommon at Punta Rassa in midsummer (July 18, 1886), and it seems probable that it breeds at some point on the Gulf Coast.

Sterna dougalli. ROSEATE TERN.—The only record of the species that I have is a male bird, adult, No. 4860, taken at John's Pass September 24, 1886. The bird is in worn plumage, and had not completed the fall moult.

Sterna antillarum. LEAST TERN.—A common migrant, and breeds in numbers at almost every point on the coast that I have visited. The

birds arrive at Tarpon Springs early in April, many pass on north, and the breeding season is at its height late in May. They remain till late in September commonly, and a few are to be seen until about November 1. I only noticed a single bird among many hundreds of this species during the month of May, 1886, that still retained the plumage of the first year.

Referring to this species on the Island of Key West, Mr. Atkins says: "I have found the Least Terns breeding on the beach of a partially dried-up pond in the woods."

Hydrochelidon nigra surinamensis. BLACK TERN.—This species was abundant in large flocks at John's Pass in the early part of June, 1886, and equally common when I visited this point in September (12-24) of the same year. About thirty per cent of the birds observed in the spring were in adult breeding plumage. Mr. Atkins obtained the species in midsummer at Punta Rassa commonly.

Rynchops nigra. BLACK SKIMMER. — An abundant migrant and common resident at points visited on the Gulf Coast. Many breed at suitable localities.

In concluding my remarks on the Gulls and Terns of the Gulf Coast, I wish to present to the reader some facts that have only recently been fully authenticated by me, and which of course contradict in a certain sense some of the foregoing remarks as to the points at which certain of the species enumerated breed. Having heard of the wholesale destruction of the Gulls and Terns on their breeding grounds at the mouth of Tampa Bay on Passage Key, and on the low sand islands and bars off Pass Agrille, I determined to look into the matter. I was familiar with both breeding places where only a few years ago countless hosts of Terns, Gulls, and Black Skimmers nested.

On July 2 of the present year I sent Mr. W. S. Dickinson and Mr. Parkes to carefully look over these breeding grounds and to report to me in detail. For this work Mr. Dickinson was well fitted and capable, having had very considerable experience, working with me and under my direction for an entire year.

The two gentlemen were gone six days and though the results of the expedition were negative in one sense, they were conclusive and positive in another.

Not a Tern of any kind was found breeding or with young at any of the points in question. The only Terns seen were about fifty *Sterna maxima*, a number of *S. antillarum*, twelve or fifteen Forster's or Common Terns that were so wild that it was impossible to identify them, and a flock of some three hundred *H. nigra surinamensis*. About fifty Black Skimmers were breeding and had *fresh* eggs on the beach near Pass Agrille, and a dozen were found nesting at Passage Key.

This was *all* that was left of a breeding colony that had once numbered its tens of thousands, and the evidence tells its own story.

Not a single Cabot's Tern *was seen* where they had once bred in great numbers, and the birds that were seen were so wild and shy as to make identification a very difficult task.

These results have been brought about by the persecutions of plume hunters, for there had been great demand for the Terns for hats, and by the depredations of egg hunters from Manatee, who find this a point from which in years gone by they have been able to supply the markets of the towns near by with *eggs for food.*

The only Gulls that were noted on this expedition were a few Laughing Gulls.

These breeding grounds are all easily accessible from Point Pinullas and Prof. H. A. Smeltz, a resident till recently of that locality, assures me that he has known the plume hunters of that region to ship to the New York dealers *seven barrels* of plumes and flat skins in a single week during the breeding season of the Herons, Gulls, and Terns; and I know personally of a contract made by a New York house with two men of that locality for 30,000 Terns' skins to be delivered during a single season.

The methods of the egg hunters are of too great interest to be passed over. The beaches where Terns' and Gulls' eggs were laid in great quantities, were carefully scraped with boards used as brushes. *All* the fresh eggs were selected after being swept into the water and those that had been incubated allowed to drift away with the tide. But the work was really done so that the egg robber might the next day get *all* the eggs that had been laid in the interval.

Anhinga anhinga. ANHINGA.—A common resident, breeding from late in March till the middle of July in the vicinity of Tarpon Springs. The breeding season is, however, at its height in this locality about the last week in April. The birds do not seem so gregarious at this or other seasons of the year as do the Cormorants, and it is unusual to find more than a dozen pairs at a 'rookery,' from two to four pairs being the ordinary contingent. Almost every fresh water pond has its pair or more, and on the larger lakes and streams they are plentiful. I have yet to find the species breeding in a salt water rookery, or to see one in the pure salt water of the Gulf, though they are occasional on the brackish bayous that connect with the Gulf.

Phalacrocorax dilophus floridanus. FLORIDA CORMORANT.—An abundant and conspicuous species at all seasons near the coast and on the larger sheets of fresh water. Breeds in great colonies at suitable points near both fresh and salt water, beginning to lay in the vicinity of Tarpon Springs late in March and early in April. Generally two or three eggs are laid, and two broods are reared.

Pelecanus erythrorhynchos. AMERICAN WHITE PELICAN.—Though observed in flocks of varying size throughout the year in the vicinity of salt water, I have no records of the species breeding at any point visited. The breeding, if it occurs in the region in question, seems unknown to any of the native hunters I have talked to.

Pelecanus fuscus. BROWN PELICAN.—A common resident at most points on the Gulf, and breeds in colonies, generally of great size, on the mangrove islands in April, May, and June, according to the many notes accumulated.

Fregata aquila. MAN-O'-WAR BIRD.—A resident species, but much more abundant during the warmer months of the year. They do not, so far as I am aware, breed at any point north of Charlotte Harbor, nor at that point.

Wherever there is a salt water rookery, particularly of Pelicans or Cormorants, these birds congregate in great numbers during the time the young birds are being reared, and at this season act much as do the parasitic Gulls, stealing food from young and old birds. I have frequently seen them preying on Gulls and Terns when fishing, just as the Jaegers do.

Merganser serrator. RED-BREASTED MERGANSER.—A common winter resident at least as far south as the mouth of the Anclote River. Here they arrive about the first of November and remain till late in February, and a few are to be seen in March. They frequent almost exclusively regions where oyster bars abound, especially such bars as are left bare or nearly so by each receding tide.

Lophodytes cucullatus. HOODED MERGANSER.—A common winter resident, and some breed. Unlike *M. serrator*, these birds seem to prefer the ponds of fresh water near the coast, and I have never seen one in the Gulf, though back in the country a mile from the salt water they are common.

Anas boschas. MALLARD.—The Mallard does not seem as abundant at the several points visited on the Gulf Coast as it is on the East Coast, according to authorities. In the region about Tarpon Springs, though not rare, it is not nearly so abundant as some of its congeners. Here it is a regular winter visitor.

Anas fulvigula. FLORIDA DUCK.—Resident, but not at all common, in the region about Tarpon Springs. At points on old Tampa Bay, I am informed by Mr. Stuart of Tampa (who is well acquainted with the bird), it is rather common and breeds.

I met with the bird once only in the Charlotte Harbor region, on May 21, 1886, when a single pair were seen, and so close at hand that there could be no mistake as to their identity.

Anas americana. BALDPATE.—In December, 1879, I took at the mouth of the Withlacooche River an adult male of this species in full plumage. This is the only record I have of its occurrence on the West Coast, where it is apparently rare.

Anas carolinensis. GREEN-WINGED TEAL.—A not very common winter visitor in Hillsboro County. Frequents only fresh water in the vicinity of Tarpon Springs. At Panassoffkee Lake in the winter of 1875–76 this bird was very abundant.

Anas discors. BLUE-WINGED TEAL.—Rather more common in fall, winter and spring than the last; this in the region about Tarpon Springs, but at Panassoffkee Lake the reverse was true.

Dafila acuta. PINTAIL.—A not uncommon winter visitor, at least as far south as Tampa Bay. I have records of its occurrence each winter that I have spent in the vicinity of Tarpon Springs, and it was a common Duck

in the region about Panassoffkee Lake, Sumpter County, during a visit I paid to that locality in the winter of 1875-76.

Aix sponsa. WOOD DUCK.—A common resident at all points visited, and breeds in numbers, but is apparently more common in the colder months of the year.

Aythya affinis. LESSER SCAUP DUCK.—An abundant winter visitor in the regions near the coast, at least as far south as Charlotte Harbor. The birds begin to arrive early in November about Tarpon Springs, are soon common, and remain in numbers till about May 1, after which small flocks are not uncommon till about the 20th of that month, when all seem to have departed.

On May 5, 1886, I noted three Ducks which I now believe to have been this species, though then recorded as *Aythya marila nearctica*, near the mouth of the Myiakka River at the head of Charlotte Harbor. (See Auk, Vol. IV, No. 2, April, 1887, p. 141.)

On May 9, 1886, at a point only six miles north of Punta Rassa I saw two large flocks, not less than two hundred in each, of this species, and killed birds for identification from each flock.

This was also the most abundant species at Panassoffkee Lake, Sumpter County, during the winter of 1875–76.

Aythya collaris. RING-NECKED DUCK.—Rare on the Gulf Coast about Tarpon Springs where I have but a single record of its occurrence. At Panassoffkee Lake in the winter of 1875–76 it was not at all uncommon, and was associated in flocks with the foregoing species.

Glaucionetta clangula americana. AMERICAN GOLDEN-EYE.—On January 9, 1888, while in a boat fishing at the mouth of the Anclote River, a single individual of this species flew by within twenty yards, making the identity certain. It was a male bird in high plumage.

Charitonetta albeola. BUFFLE-HEAD.—I have a number of records of the occurrence of this species on the Gulf Coast during the winter months, but it is even at this season a comparatively rare bird, and more frequently represented by immature individuals.

Erismatura rubida. RUDDY DUCK.—Of rather frequent occurrence in the vicinity of Tarpon Springs in winter months.

Chen hyperborea nivalis. GREATER SNOW GOOSE.—The record already published in 'The Auk,' Vol. V, No. 2, April, 1888, p. 183, is the only authentic occurrence that has come to my knowledge to date. I am indebted to Mr. J. W. Atkins, of Key West, for the information then published.

[*To be continued.*]

TESTIMONY OF SOME EARLY VOYAGERS ON THE GREAT AUK.

BY FANNIE P. HARDY.

MR. LUCAS, in his recent article on the Great Auk, asks if the "great Apponatz" of Hakluyt may not be either a misprint or a wrong translation of "*grasse Apponatz*," the fat Apponatz; and further on supposes, for the sake of a question, that the Apponatz is the Razor-bill, as if the "Apponatz" and the "great Apponatz" were two different birds. That there is no mistake involved, and that but one bird, the Great Auk, is meant, can be shown by comparing the certain statements of early travellers.

Unfortunately the notes from which I draw my material were taken for quite another purpose, and contain no extracts from Cartier, and no copy of his works is at present accessible; but as every good library should contain at least the Tross reprints of the 'Bref Recit et Succinte Narration,' the 'Discours du Voyage fait (en 1534)' and the 'Relation Originale,' his exact words can be very easily determined. A few of the very best libraries in the country may possibly contain the following as well: 'A short and ‖ brief narration of the two ‖ Navigations and Discoueries ‖ to the Northwest partes called ‖ Newe France:‖ First translated out of French into Italian by that famous ‖ learned man Gio: Bapt: Ramutius, and now turned ‖ into English by John Florio: worthy the rea ‖ ding of all Venturers, Trauellers ‖ and Discouuerers' ‖ etc. This book, published in 1580, is an English translation of Cartier's work, and is in all probability the one quoted by Hakluyt.

While these four books would decide the question of *grande* and *grasse*, far more valuable as evidence is a quotation from one of them made by Marc Lescarbot in 1609. This I have not compared with Cartier, but probably, like most of the quotations of that time, it is a paraphrase rather than a verbal reproduction. Certainly it is much modernized in spelling. Yet that it is strikingly accurate anyone may see by comparing the French as here given with the English translation from Hakluyt, quoted in 'The Auk' for April, p. 129. The great value of this extract as evi-

dence, lies in the fact that Lescarbot had travelled extensively in this country, being as he said himself "temoin oculaire d'une partie des choses ici recitées"; and so able from his own experience to correct any misprint in Cartier's work; and moreover would not have hesitated to do this, as anyone who is acquainted with the calm way in which these early travellers appropriated each other's observations will admit. The extract is as follows:

" . . . .et approchames de trois iles, desquelles y en avoit deux petites droites comme un mur, en sorte qu'il estoit impossible d'y monter dessus, et entre icelles y a un petit escueil. Ces iles estoient plus remplis d'oiseaux que ne seroit un pré d'herbes, lesquels faisoient là leur nids, et en la plus grande de ces iles y en avoit un monde de ceux que nous appellions Margaux, qui sont blancs et plus grands qu' Oysons, et estoient separez en un canton, et en l'autre part y avoit des Godets; mais sur le rivage y avoit de ces Godets et *grands Apponaths* semblables à ceux de cette ile dont nons avons fait mention [probably his Ile des Oyseaux, No. 3 of his chart; this Ile des Margaux is No. 46]. Nous descendimes au plus bas de la plus petite, et tuames plus de mille Godets et Apponaths et en mimes tant que souloumes en noz barques, et en eussions plus en moins d'une heure remplir trente semblables barques. Ces iles furent appellées du nom de Margaux." (Lescarbot, Histoire de la Nouvelle France, Vol. I, p. 231 et seq., ed. 1609; p. 233 et seq., Tross edition.)

It is extremely improbable that the same verbal error should find its way into the three different versions of Cartier and also into the four editions of Lescarbot published during the latter's lifetime. Hence if Hakluyt, quoting a translation, said "great Apponatz," and Lescarbot, quoting Cartier either directly or indirectly, said "grands Apponaths," the chance that Cartier ever said or meant to say "grasse" is exceedingly small. Whatever the bird was, we must admit that it impressed the French as being large; and we must remember that this is an absolute, not a relative term.

In one or two places Mr. Lucas writes "Great Apponatz," beginning the adjective with a capital, as if there might be a 'Lesser Apponatz,' in comparison with which this was large. That this could not have been the case, may be seen from the fact that Apponatz, or Apponath, was an Indian name, not yet naturalized, so that any adjective attached must have been purely descriptive, never distinctive in its use. For any other bird some-

what resembling this, the French would have adopted the Indian name already applied to it, instead of transferring this. But there are other reasons why Apponath can refer to the Great Auk only. Later, we find that the bird had French names given it, and Apponath was retained only as a synonym. Frère Gabriel Sagard Theodat, in his 'Grand Voyage du Pays des Hurons' (Paris, 1632), speaks of the bird as Guillaume, Tangeux, or Apponath, stating that the latter is the Indian name for it. He describes this bird as being "large as a goose," "black and white," "with a short tail and little wings." Unquestionably, this is the Great Auk, and his use of the word Apponath is such that it must have been applied to this bird only. Aside from this, there is another reason, partly negative, but having great weight with those best acquainted with the zoölogical observations of this age, why the term Apponath could not have included the Razor-bills. There is no evidence, I think, that the French voyagers ever noticed the difference between the Razor-bills and the Murres; I am not aware that any of the early English observers made the distinction. The points most important in scientific classification were passed by unnoticed, differences of size, color and habit forming the basis of their distinctions. To them, birds as near alike in size, figure, habits and general coloration, as the Murres and Razor-bills, would be regarded as one and the same. It is almost a certainty that the Godels (the Godetz of Cartier, Godets and Godes of Lescarbot) which Sagard describes as similar to the Apponath but smaller, include both the Murres and Razor-bills. Another reason for the term Apponath not referring to the Razor-bill is that it is everywhere spoken of as being fat, "excessivement gras." Murres and Razor-bills, so far as my personal experience goes with specimens killed in winter, are, contrariwise, excessively lean, being shaped somewhat like a toy Noah's Ark. But the Apponath, on the other hand, is invariably described as fat and oily; and the term Tangeux which Sagard says was the sailor's name for the Guillaume or Apponath, although not in any dictionary which I have consulted, seems to be equivalent to "lumpers," and to imply that the birds were short and fat. What Guillaume signifies, not even Trevoux hints at. John Josselyn in his 'New England's Rarities Discovered,' etc. (London, 1672), describing the Wobble, which is undoubtedly the

Great Auk, calls it "an ill shaped Fowl, having no long feathers in their Pinions, which is the reason they cannot fly, not much unlike a Pengwin; *they are in Spring very fat*, or rather oyly, but pull'd and garbidg'd, and laid to the fire to roast, they yield not one drop."

More evidence might easily be collected from the narrations of these early travellers, but in dealing with them care has to be exercised to see that they are not quoting some earlier traveller without giving him the credit due him.

As to the Great Auk breeding on the New England coast, the statement of Josselyn already quoted, that they were taken at Black Point (which was near Portland, Maine) *in the spring*, is an indirect testimony, the stronger for being undesigned. Again in Archer's 'Account of Gosnold's Voyage to Cape Cod' made in the spring and summer of 1602, he mentions "seeing petrels, coots, hagbuts, *penguins*, mews, gannets, cormorants, gulls," etc. These birds were seen in the months of May and June in the region of Cape Cod; hence it is reasonable to suppose that the Penguin, or Great Auk, was breeding there at that time. Again, Brereton in his 'Account of the Voyage of Gosnold to Virginia' speaks of the birds of the country, among which he mentions "eagles; hernshaws; cranes; bitterns; mallards; teals; geese; *penguins;* osprays and hawks; crows; ravens; mews; doves; sea-pies," etc. Gosnold arrived in Virginia, April 26, 1607, and Brereton's account was published the following year, so that these "penguins" may have been seen during the winter, though it is fully as probable that the list was made soon after their arrival in the country. Throwing this out as doubtful, at least two good references have been given to show that the Great Auk was present on our coasts during the summer. If they were there at that time, what could they have been there for unless to breed?

In his article in 'The Auk,' Mr. Lucas says: "As for the bones found in shell-heaps, they are probably those of birds taken during their migrations southward, for the Great Auk was doubtless formerly as common on the New England coast during the autumn and winter months as the Razor-bill is now." This certainly is a fair conjecture, and may be the correct one yet; considering the references already given which show that the Great Auk was, for a period of seventy years at least, a summer resi-

dent, and also taking the formation of the shell-heaps into account, it is quite as probable that these were summer specimens. For, the popular opinion to the contrary, I can show the best of reasons for believing that nineteen-twentieths of all the clams and oysters represented by our shell-heaps were taken and shelled during the summer months; that the Indians, instead of living on the spot the year round, came down the rivers in the summer in large numbers and made a business of gathering clams and oysters; and that, instead of eating these on the spot, they dried them in large quantities and carried them back up river and into the country for winter food. If this be the correct solution of the formation of the shell-heaps, these heaps must have accumulated rapidly during the summer, and slowly (for undoubtedly some Indians remained there the year through) during the rest of the year. Hence, most of the bones found in the heaps are the kitchen refuse of those engaged in shelling clams for winter use; hence, also, if the bones of the Great Auk are found in numbers proportionate to the bones of other kinds of animals, they are, presumably, the remains of birds taken by summer occupants of the kitchen middings and were not fall and winter specimens. That this is not mere theorizing the statements of Archer and Josselyn show: for if the birds were on the coast in summer at a date when the shell-heaps were approaching their completion, it is not illogical to suppose that they were at least equally abundant at the same season while the shell-heaps were growing most rapidly; and if the shell-heaps received nearly all their additions during the summer months, as can be shown to be true of the Maine heaps, the majority of the Great Auk bones found in them may be confidently set down as the remains of birds who had bred or were breeding on the coast. It will yet be conclusively proved that the Great Auk was resident the year round on the coasts of New England.

NESTING OF THE RED-FACED WARBLER (*CARDELLINA RUBRIFRONS*) IN THE HUACHUCA MOUNTAINS, SOUTHERN ARIZONA.

BY W. W. PRICE.

THIS beautiful Warbler is commonly met with in the pine region of Southern Arizona, where, in the Huachuca Mountains, on May 31, 1888, I had the good fortune to find its nest and eggs, the first taken within the limits of the United States, I believe.

Early on that morning I left the house at the mouth of the Ramsey Cañon, taking an old disused lumber road to the mills, situated about three miles from my stopping place, and at an elevation of about 6500 feet, or some 2000 feet above the mesa at the northern base of the range. I had secured a fine variety of birds and was on my return, when I decided to leave the trail and follow down the cañon, which, below the point where the road leaves it and crosses a spur of the mountains, is extremely steep and rocky. As I was making my way slowly down, I noticed a Sulphur-bellied Flycatcher (*Myiodynastes luteiventris*) perched on a branch of a maple, and while I was trying to get a shot at it, a little bird flew from close to my feet. On securing the Flycatcher I returned and searched for some time in vain for my bird and nest, and was about to leave, when a *C. rubrifrons* came chirping about. I secreted myself, and the bird soon flew to a clump of columbine which grew on the bank of the creek. I again flushed the bird, a female, and secured it, and also found the nest, which was placed on sloping ground in a slight hollow and contained four fresh eggs. A few sprays of the columbine hid the nest so completely that had not the bird been frightened directly off from it, I should not have found it. Dissection of the female showed that the full clutch had been laid. The structure was a very poor attempt at nest-building, and made of such loose material that it crumbled to fragments on being removed. The chief substance was fine fibrous weed stalks, while the lining consisted of fine grass, rootlets, plant fibres, and a few hairs. Skeleton leaves and bits of fine bark were scattered sparingly throughout the nest. Leaves and other rubbish had drifted with the wind or had been

scratched up all around, to a level with the rim, so that one could hardly see where the nest proper left off. Inside the nest was about two and one half inches wide by one and one half inches in depth; outside it was about five inches wide by three inches in depth. The ground on which the nest was placed was so damp that the bottom part of it was badly decayed.

[The eggs of *Cardellina rubrifrons*, kindly presented by Mr. Price to the National Museum collection at Washington, D. C., are new to science, I believe. They are ovate in shape. Their ground color is a delicate creamy white, and they are spotted with small blotches of cinnamon rufous and a few dots of heliotrope purple and pale lavender. These form a wreath around the larger end. They resemble the eggs of *Helminthophila luciæ* and *H. virginiæ* to a certain extent. They measure .66 × .50, .67 × .50, .66 × .50 and .66 × .50 inch.—CHAS. E. BENDIRE.]

NOTES ON THE BIRDS OF WINCHENDON, WORCESTER COUNTY, MASSACHUSETTS.

BY WILLIAM BREWSTER.

IN 1887 I spent three days (June 23 to 26), and in 1888 seven days (June 11 to 18), investigating the bird fauna of the region about Winchendon, a town near the northern border of Worcester County, Massachusetts, about sixteen miles south of Mt. Monadnock.

On the first trip I was accompanied by Mr. H. A. Purdie, on the second by Messrs. H. M. Spelman and S. W. Denton; while during both visits Mr. C. E. Bailey, a young local collector, devoted his entire time to helping me, his intimate knowledge of the woods and swamps and the particular haunts of some of the rarer birds proving of very great value. Upon looking over the notes made during these trips I have decided to omit in the present paper any detailed mention of birds whose occurrence possesses no particular significance or interest, but a nominal list is given of all the species observed.

Most of the notes relate, of course, to the presence of the summer birds only, but a few captures of rare winter visitors are given on Mr. Bailey's authority.

The region about Winchendon — that is, within five or six miles on every side — varies in elevation from about 850 to 1300 feet.* There are no mountains nearer than Monadnock, but the surface of the country is everywhere broken and hilly, very wild and picturesque, and mainly wooded, the farms being comparatively few and far between, and the forest areas often miles in extent. On the hills and throughout the drier portions of the lowlands, the forests are composed chiefly of white pine, hemlock, and various deciduous trees. The swamps, nearly without exception, are covered with a dense, almost impenetrable and rather stunted growth of black spruces, balsams, and larches, with a very few white spruces. The black spruces and balsams also grow abundantly about the edges of the hill pastures, along the roadsides, and wherever there is young second growth. On sandy levels in the valleys one finds a few red and pitch pines. The hardwood timber on the uplands is composed chiefly of beech, red and sugar maple, yellow and paper birch, with a sprinkling of red oaks and basswoods, a very few chestnuts, and more or less scattering, old-growth spruces. The trees in these upland woods are often of large size, and there are a few tracts which have never been touched by the axe. The underwood is chiefly of hobble bush (*Viburnum lantanoides*) and striped and mountain maples, the last two being especially abundant along the borders of streams and openings. In places yew is also found, but I saw no extensive or very vigorous beds of it. About the swamp edges the beautiful pink azalia (*A. nudiflora*) is everywhere common. Ferns of various species flourish in great luxuriance wherever the soil is damp enough for them, and a deep, soggy carpet of sphagnum covers the ground in the swamps. On the hillsides, especially under white pines, the exquisite little *Linnæa borealis* is frequently met with, and *Clintonia borealis* abounds everywhere.

In more general terms the flora may be characterized as resembling that of the valleys and foot hills about the confines of the White Mountains. It lacks, however, as far as I could learn, one northern tree which is common and very generally distributed throughout northern New England, viz., the arbor vitæ.

*This generalization is based on the following altitudes furnished me by Mr. H. W Henshaw from the Coast Survey records at Washington; "Winchendon Centre, 1225 ft.; depot, 978 ft.; Bullardville, 845 ft.

Of mammals the white hare and Canada porcupine are abundant. Deer and bears have been exterminated (the latter less than fifty years ago), but a 'wild cat' is occasionally seen. Red squirrels are numerous, gray squirrels less so, but still not uncommon. Foxes, raccoons, woodchucks, skunks and striped squirrels abound.

The bird fauna, like the flora, is curiously mixed in character. Thus, Brown Thrashers, Catbirds, Towhees, Meadowlarks, and Baltimore Orioles occur with Winter Wrens, Golden-crested Kinglets, Yellow-rumped and Black-and-yellow Warblers, Juncos, and White-throated Sparrows. Unlike portions of Berkshire County and the Catskills where these or equally typical representatives of the Canadian and Alleghanian Faunas are found near together, but respectively confined to different altitudinal belts or areas and hence not to any considerable extent in actual company, the country about Winchendon seems to form a neutral ground upon which the birds above-named intermingle on the same levels, and often in the same thickets. If altitude must be assumed to play any part in their distribution its influence is directly contrary to the usual one, for most of the northern birds, whether computed by species or individuals, breed in the valleys, while the Alleghanian forms are certainly not least numerously represented on the hill tops. This seeming paradox is easily explained, however, when we reflect that the woods in the low-lying swamps are closely similar to those of northern New England, whereas the growth on the hills and ridges is essentially the same as that of the lower portions of Massachusetts. This is probably due to the fact that the extremes of elevation within the region are not sufficiently great to overcome local influences, such as differences in soil, relative amounts of moisture, etc. Be this as it may the birds evidently settle wherever the woods, swamps, or fields are most to their liking, without regard to elevation. Such a case may well arouse suspicion as to the extent to which the distribution of birds is directly governed by altitude, or its equivalent, latitude. Is not the presence or absence of certain kinds of country, or of particular trees or plants which furnish congenial food, shelter, or nesting sites more likely to be the determining factor, at least in very many cases? It would be interesting to plant a northern forest in southern New England and await developments. If

the spruces, balsams, etc., could be made to live and flourish, the outcome of the experiment would at least go far towards settling the question above proposed.

List of species ascertained to pass the breeding season near Winchendon.
(Those marked with an * are not common.)

1. Urinator imber.
2. Anas obscura.
3. Aix sponsa.*
4. Philohela minor.
5. Actitis macularia.
6. Bartramia longicauda.
7. Bonasa umbellus.
8. Ectopistes migratorius.*
9. Zenaidura macroura.*
10. Buteo borealis.
11. Syrnium nebulosum.
12. Nyctala acadica.
13. Megascops asio.*
14. Bubo virginianus.
15. Coccyzus erythrophthalmus.
16. Dryobates villosus.
17. Ceophlœus pileatus.*
18. Colaptes auratus.
19. Antrostomus vociferus.
20. Chordeiles virginianus.
21. Chætura pelasgica.
22. Tyrannus tyrannus.
23. Myiarchus crinitus.*
24. Contopus borealis.*
25. " virens.
26. Empidonax minimus.
27. Cyanocitta cristata.
28. Corvus americanus.
29. Dolichonyx oryzivorus.
30. Agelaius phœniceus.
31. Sturnella magna.*
32. Icterus galbula.
33. Quiscalus quiscula æneus.
34. Carpodacus purpureus.
35. Loxia curvirostra minor.
36. Spinus tristis.
37. Poocætes gramineus.
38. Ammodramus henslowi.*
39. Zonotrichia albicollis.*
40. Spizella socialis.
41. " pusilla.
42. Junco hyemalis.*
43. Melospiza fasciata.
44. Melospiza georgiana.
45. Pipilo erythrophthalmus.
46. Habia ludoviciana.
47. Passerina cyanea.
48. Piranga erythromelas.
49. Progne subis.
50. Petrochelidon lunifrons.
51. Chelidon erythrogaster.
52. Tachycineta bicolor.
53. Clivicola riparia.
54. Ampelis cedrorum.
55. Vireo olivaceus.
56. " gilvus.
57. " solitarius.
58. Mniotilta varia.
59. Helminthophila ruficapilla.
60. Compsothlypis americana.
61. Dendroica æstiva.
62. " cærulescens.*
63. " coronata.
64. " maculosa.
65. " pensylvanica.
66. " blackburniæ.
67. " virens.
68. Seiurus aurocapillus.
69. Geothlypis trichas.
70. Icteria virens.*
71. Sylvania canadensis.
72. Setophaga ruticilla.
73. Galeoscoptes carolinensis.
74. Harporhynchus rufus.
75. Troglodytes hiemalis.*
76. Sitta canadensis.*
77. Parus atricapillus.
78. Regulus satrapa.
79. Turdus fuscescens.
80. " aonalaschkæ pallasii.
81. Merula migratoria.
82. Sialia sialis.

Urinator imber.—One or more pairs of Loons breed regularly in every pond of sufficient size near Winchendon. Mr. Albert Henry, of Gardner, took a set of two eggs at Blue's Reservoir in 1887. At Wellington's Reservoir, a large sheet of water about five miles north of Winchendon, a farmer living near the shore assured us that he saw several of the birds daily through the entire summer. He thought that there were at least three pairs in the pond in 1888.

Anas obscura.—Mr. Bailey sees a few Black Ducks every summer but they are much less numerous at that season than in spring and autumn. Early in June, 1888, he found on the bank of a brook, the shells of several eggs that had probably hatched a few days before.

Nyctala acadica.—A common resident, doubtless breeding numerously, although Mr. Bailey has not as yet succeeded in finding nests.

Surnia ulula caparoch.—In the winter of 1886–87 Mr. Bailey shot three specimens, in that of 1887–1888 one. He thinks they occur regularly every winter.

Dryobates villosus.—During my first visit to Winchendon I did not find this species, but in 1888 we met with several. A pair seen June 16, were feeding young which had evidently just left the nest.

Picoides arcticus.—Mr. Bailey killed four specimens in the winter of 1886–1887, and one during the following winter. He is very sure they were visitors from the north, and that none breed near Winchendon.

Ceophlœus pileatus.—Resident, but not common. Mr. Bailey sees only two or three pairs each season but thinks that there are more in Winchendon than in any of the neighboring towns. About the middle of June, 1887, one of his friends met with a brood of young in the woods. I did not find the bird during either visit, but its unmistakable mortise-shaped 'peck holes' were frequently observed.

Contopus borealis.—June 26, 1887, we found two pairs of Olive-sided Flycatchers in an extensive sphagnum swamp, and after a short search discovered one of their nests near the top of a rather tall black spruce. The female was sitting on three nearly fresh eggs. In 1888 I did not revisit this swamp, but Mr. Bailey passed it a few days before my arrival and heard the Flycatchers calling. We did not find the species elsewhere.

Loxia curvirostra minor.—A single pair seen in spruce woods June 13, 1888, and the male shot. His testes were of large, but not maximum size. Mr. Bailey tells me that this Crossbill is numerous every winter, but he has never seen it in summer before. Its occurrence at the latter season does not prove, of course, that it breeds about Winchendon, although it would be by no means surprising if a few pairs were found to nest there.

Ammodramus henslowi.—Several pairs breeding in a meadow about three miles south of Winchendon.

Zonotrichia albicollis.—In 1887 I met with two males, and in 1888 one, all in spruce swamps. They were in full song and evidently had mates and nests, for they showed the utmost concern when their retreats were invaded.

Junco hyemalis.—Apparently quite as uncommon as the White-throated Sparrow, for we met with only three pairs, one in 1887, two in 1888. All were on high ground in pine or hemlock woods. The males were singing, and the actions of at least one of the females indicated that there were eggs or young somewhere near.

Helminthophila chrysoptera.—A single male was obtained by Mr. Bailey in May, 1888.

Dendroica cærulescens.—The only Black-throated Blue Warbler met with during either year was a male shot June 17, 1888. This bird was singing steadily in a dense growth of young hemlocks on a hillside. As there were no beds of yew (the favorite nesting place of this species) in the neighborhood, and as we had passed several previous mornings in the same woods without hearing the bird, it is probable that he had strayed some distance away from his mate and nest, or that he was a bachelor wandering aimlessly about the country.

Dendroica coronata.—Rather common but nowhere very numerous. Found chiefly in groves of white pines on high ground but also, to some extent, in the spruce swamps. Although we failed to find any nests there can be no doubt whatever that the birds seen were breeding.

Dendroica maculosa.—This Warbler breeds in about the same numbers as the Yellow-rump. Both species were nearly sure to be seen daily, but it was unusual to find more than one pair of either in any single tract of woods, however large. The favorite haunts of the Black-and-yellow, here, as in northern New England, are swamp edges, woodpaths, or borders of openings where the undergrowth is more or less intermixed with young spruces and balsams. In such a place—within about ten yards of a woodpath—we found a nest June 15, 1888, containing four nearly fresh eggs. This nest was typical in position, being placed near the top of a small spruce at a height of about five feet. In construction it differed from Maine nests of this species only in respect to the lining, which was largely of horse hair with, however, an admixture of black rootlets.

Dendroica blackburniæ.—On both high and low ground, wherever there were spruces in any numbers, whether by themselves or mixed with other trees, and also to some extent where the growth was entirely of hemlocks, the Blackburnian Warbler was one of the most abundant and characteristic summer birds, in places even outnumbering the Black-throated Green Warbler, although it shunned strictly the extensive tracts of white pines which *D. virens* seemed to find quite as congenial as any of the other evergreens. A set of four fresh eggs was taken June 26, 1887. The nest, which was found by watching the female, was built at a height of about thirty feet above the ground, on the horizontal branch of a black spruce, some six feet out from the main stem. Its bottom rested securely near the base of a short, stout twig. Above and on every side masses of dark spruce foliage, rendered still denser by a draping of *Usnea* (which covered the entire tree profusely), hid the nest so perfectly that not a vestige of it could be seen from any direction. This nest is composed outwardly of fine twigs, among which some of the surrounding *Usnea* is entangled and

interwoven. The lining is of horse hair, fine, dry grasses, and a few of the black rootlets used by *D. maculosa*. The whole structure is light and airy in appearance, and resembles rather closely the nest of the Chipping Sparrow. The eggs measure respectively: .68 × .49; .66 × .50; .69 × .49; .68 × .51 inch. They are marked with pale lavender, vandyke brown, mars brown, and black. Over most of the shell the markings are fine and sparsely distributed, but about the larger end they become broad and more or less confluent, tending to form a wreath pattern. Some of the black markings are linear, resembling pen scratches. The ground color of these eggs before blowing would have passed for dull white, but with the removal of their contents a delicate, yet faint, greenish tinge appeared and has since persisted. This greenish tinge was also a characteristic feature of eight eggs (representing two sets) taken by Mr. Bailey at Winchendon before my arrival in 1887. Lest the identification of the above-described set be questioned, I will add that the female was seen to enter the nest, and that both she and her mate were shot and preserved.

Icteria virens.—Mr. Bailey shot a male of this species May 30, 1888.

Sylvania canadensis.—Throughout the spruce swamps the Canadian Warbler was everywhere abundant. A brood of young barely able to fly were met with June 25, 1887, and the next day Mr. Purdie took a set of eggs rather far advanced in incubation. The nest was in the face of a low, sphagnum-covered mound about eighteen inches above its base. In the soft mould behind the outer covering of sphagnum the birds had excavated a cavity about the size of one's fist. In the bottom of this cavity was the nest, a loosely formed, but nevertheless neat structure, composed outwardly of dry leaves, and lined with pine needles, black rootlets, and a little horse hair. The bird entered by a small round hole, the bottom of which was about on a level with the top of the nest. All the nests (a dozen or more) of this species which I have examined were built like the one just described, although the height above the ground has varied, one which I took at Lake Umbagog in 1879, being higher than my head in a patch of moss that covered the face of a perpendicular cliff. I have yet to see a nest placed *on* the ground and open at the top as most of the book descriptions indicate.

Troglodytes hiemalis.—In the swamp where the Olive-sided Flycatchers breed, we heard two Winter Wrens singing June 26, 1887. While trying to get a sight at one of them I flushed and shot a young bird which could not have been more than a day or two from the nest, as it was unable to fly more than a few yards at a time. There were many fallen trees in the vicinity, and their upturned roots, laden with earth and overgrown with moss, afforded numberless nesting sites. As already stated, I did not revisit this swamp in 1888, but Mr. Bailey tells me that he heard the Wrens singing there a few days before our arrival.

Sitta canadensis.—Besides the Winter Wren and Olive-sided Flycatcher the spruce swamp just mentioned furnished another species not found elsewhere, viz., the Red-bellied Nuthatch. We saw only a single pair which, attracted by the outcry made by the Canadian Warblers as we were

taking their nest, came into the trees overhead, uttering their peculiar nasal whining. Doubtless they were breeding somewhere in the neighborhood, although I have no positive proof of this.

Regulus satrapa.—My experience with this species at Winchendon is given fully in another article in this number of 'The Auk.'

Turdus aonalaschkæ pallasii.—An abundant bird throughout the entire region, haunting by preference dry, rather open, white pine woods.

LIST OF ADDITIONS TO THE NORTH AMERICAN AVIFAUNA AND OF ELIMINATIONS AND CHANGES IN NOMENCLATURE PROPOSED SINCE THE PUBLICATION OF THE A. O. U. CHECK-LIST.

BY FRANK M. CHAPMAN.

Since the publication of the 'Check-List' in March, 1886, the additions and corrections to our avifauna have been so numerous it has been considered advisable to collate them, and the following compilation is presented with a hope that it may be of some service to the many workers in North American Ornithology.

It may be well to add that the compiler has made it an object to include *all* the additions and changes which have been made without reference to their tenability.

I. ADDITIONS.

Species and subspecies which have been described as new, 'revived,' or recorded as North American.

1. **Larus barrovianus** *Ridgw.* POINT BARROW GULL. RIDGWAY, Auk, III, July, 1886, p. 330.

HAB. "Bering's Sea and contiguous waters, northeastward to Point Barrow; southwestward to Japan (in winter)."

2. **Larus minutus** *Pall.* LITTLE GULL.—Recorded from Long Island, New York, by Dutcher in Auk, V, April, 1888, p. 171.

3. **Diomedea exulans** *Linn.* WANDERING ALBATROSS.—Recorded from Florida (mouth of St. Johns River, Tampa Bay) and coast of Washington Territory. (Cf. *Coues*, Auk, II, Oct. 1885, p. 387, and *Ridgway*, Manual North American Birds, 1887, p. 51.)

4. **Diomedea melanophrys** *Boie.* SPECTACLED ALBATROSS.—"Casual off coast of California." (Cf. *Ridgway*, Manual N. A. Birds, 1887, p. 52.)

5. **Oceanodroma leucorhoa macrodactyla** *Bryant.* GUADALOUPE PETREL.

BRYANT, Bull. Cal. Acad. Sci. II, No. 8, 1887.

HAB. "Guadaloupe Island, Lower California."

6. **Chen cærulescens** (*Linn.*). BLUE GOOSE.

Revived by Ridgway in Manual N. A. Birds, 1887, p. 115.

HAB. "Interior of North America, east of Rocky Mountains, breeding on the eastern shores of Hudson's Bay; migrating south, in winter, through Mississippi Valley to the Gulf Coast, occasional on Atlantic Coast" (*Ridgway*, *l.c.*). (= No. 8 of the 'Hypothetical List' of the A. O. U. Code and Check-List of North American Birds.)

7. **Ardetta neoxena** *Cory.*

CORY, Auk, III, April, 1886, p. 262.

HAB. "Florida, Okeechobee region?"

8. **Ardea wuerdemanni** *Baird.* WUERDEMANN'S HERON.

Admitted by Ridgway in Manual N. A. Birds, 1887, p. 128, and Appendix, p. 583. (= No. 9 of the 'Hypothetical List' of the A. O. U. Code and Check List.)

HAB. "Florida Keys and Cape Florida; Jamaica?; accidental in Southern Illinois." (*Ridgway*, *l.c.*)

9. **Ardea virescens frazari** *Brewst.* FRAZAR'S GREEN HERON.

BREWSTER, Auk, V, Jan. 1888, p. 83.

HAB. "Near La Paz, Lower California."

10. **Rallus longirostris caribæus** *Ridg.*—Recorded from Texas (Corpus Christi and Galveston) by Sennett in Auk, V, July, 1888, p. 319.

11. **Rallus longirostris scottii** *Senn.* SCOTT'S RAIL.

SENNETT, Auk, V, July, 1888, p. 305.

HAB. "West Coast of Florida."

12. **Tringa damacensis** (*Horsf.*). LONG-TOED STINT.—

Recorded from Alaska (Otter Island, Bering's Sea) by Ridgway in Auk, III, April, 1886, p. 275.

13. **Symphemia semipalmata inornata** *Brewst.* WESTERN WILLET.

BREWSTER, Auk, IV, April, 1887, p. 144.

HAB. "Interior of North America between the Mississippi and the Rocky Mountains, wintering along the coasts of the Gulf and Southern States (Florida, Georgia, South Carolina)."

14. **Hæmatopus frazari** *Brewst.* FRAZAR'S OYSTER-CATCHER.

BREWSTER, Auk, V, Jan. 1888, p. 85.

HAB. "Pacific and Gulf Coasts of Lower California."

15. **Colinus virginianus cubanensis** (*Gould*). CUBAN BOB-WHITE.—Included by Ridgway in Manual N. A. Birds, 1887, p. 188.

HAB. "Cuba and Southwestern Florida." (*Ridgway, l. c.*)

16. **Columba fasciata vioscæ** *Brewst.* VIOSCA'S PIGEON.

BREWSTER, Auk, V, Jan. 1888, p. 86.

HAB. "Lower California."

17. **Columbigallina passerina pallescens** (*Baird.*) MEXICAN GROUND DOVE.—Revived by Ridgway in Manual N. A. Birds, 1887, p. 586, Appendix.

HAB. "Southwestern United States (Texas to Arizona and Lower California), and south through Mexico (both coasts), to Central America." (*Ridgway, l. c.*)

18. **Falco æsalon** *Lath.* MERLIN.—Recorded from Greenland by Kumlien in Auk, IV, Oct. 1887, p. 345.

19. **Falco tinnunculus** *Linn.* KESTREL.—Recorded from near Nantasket Beach, Massachusetts, by Cory in Auk, V, Jan., 1888, p. 110. (See also *Ibid*, V, April, 1888, p. 205.)

20. **Glaucidium gnoma hoskinsii** *Brewst.* HOSKINS'S PIGMY OWL.

BREWSTER, Auk, V, April, 1888, p. 136.

HAB. "Lower California."

21. **Rhynchopsitta pachyrhyncha** (*Swains.*). THICK-BILLED PARROT.—"Southwestern Texas and Southern New Mexico." (Cf. *Ridgway*, Manual N. A. Birds, 1887, p. 269.) (= No. 16 of the 'Hypothetical List' of the A. O. U. Code and Check-List.)

22. **Coccyzus americanus occidentalis** *Ridgw.* CALIFORNIA CUCKOO.

RIDGWAY, Manual N. A. Birds, 1887, p. 273.

HAB. "Western United States, north to Oregon, east to New Mexico and Colorado, south over tablelands of Mexico."

23. **Coccyzus maynardi** *Ridgw.* MAYNARD'S CUCKOO.

RIDGWAY, Manual N. A. Birds, 1887, p. 274.

HAB. "Bahamas and Florida Keys."

24. **Phalænoptilus nuttalli nitidus** *Brewst.* FROSTED POOR-WILL.

BREWSTER, Auk, IV, April, 1887, p. 147.

HAB. "Texas and Arizona."

25. **Phalænoptilus nuttalli californicus** *Ridgw.*

RIDGWAY, Manual N. A. Birds, 1887, p. 588, Appendix, foot-note (provisional description).

26. **Chordeiles virginianus sennetti** (*Coues*) *Chamberlain.*

Chordiles popetue sennetti COUES, Auk, V, Jan. 1888, p. 37.

Chordeiles virginianus sennetti CHAMBERLAIN, Systematic Table of Canadian Birds, 1888, Appendix A, p. 14.

HAB. "Dakota to Texas, in any treeless country."

27. **Chordeiles virginianus chapmani** (*Sennett*) *Scott.*

Chordiles popetue chapmani COUES, Auk, V, Jan. 1888, p. 37.

Chordeiles virginianus chapmani SCOTT, Auk, V, April, 1888, p. 186.

HAB. "Florida to Texas."

28. **Trochilus floresii** (*Gould*). FLORESI'S HUMMINGBIRD.—Recorded from California by Bryant in 'Forest and Stream,' XXVI, June 24, 1886, p. 426.

29. **Trochilus violajugulum** *Jeffries.*

JEFFRIES, Auk, V, April, 1888, p. 168.

HAB. "Santa Barbara, Cal."

30. **Empidonax cineritius** *Brewst.* ST. LUCAS FLYCATCHER.

BREWSTER, Auk, V, Jan. 1888, p. 90.

Type from La Laguna, Lower California.

31. **Cyanocitta stelleri annectens** (*Baird*). BLACKHEADED JAY.—Revived by Ridgway in Manual N. A. Birds, p. 354.

HAB. "Northern Rocky Mountains, south to Wasatch Range (near Provo, Utah), west to eastern Oregon and Washngton Territory." (*Ridgway, l. c.*)

32. **Aphelocoma insularis** *Hensh.*

HENSHAW, Auk, III, Oct. 1886, p. 452.

HAB. "Santa Cruz Island, California."

33. **Aphelocoma californica hypoleuca** *Ridgw.* XANTHUS'S JAY.

RIDGWAY, Manual N. A. Birds, 1887, p. 356.

HAB. "Lower California (vicinity of Cape St. Lucas)."

34. **Corvus corax principalis** *Ridgw.* NORTHERN RAVEN.

RIDGWAY, Manual N. A. Birds, 1887, p. 361.

Corvus corax carnivorus BAIRD, P. R. R. Surv. IX, 1858, p. 560. (Cf. *Allen*, Auk, IV, 1887, p. 335.)

HAB. "Northern North America, from Greenland to Alaska, south to British Columbia, Canada, New Brunswick, etc."

35. **Corvus americanus hesperis** *Ridgw.* CALIFORNIA CROW.

RIDGWAY, Manual N. A. Birds, 1887, p. 362.

HAB. "Western United States, north to Washington Territory (Puget Sound), Idaho, Montana, etc., south to Northern Mexico, east to Rocky Mountains."

36. **Agelaius phœniceus bryanti** *Ridgw.* BAHAMAN REDWING.

RIDGWAY, Manual N. A. Birds, 1887, p. 370.

HAB. "Bahamas and Southern Florida (Miami, Key West, etc.)."

37. **Agelaius phœniceus sonoriensis** *Ridgw.* SONORAN REDWING.

RIDGWAY, Manual N. A. Birds, 1887, p. 369.

HAB. "Northwestern Mexico and lower Colorado Valley, in Southern California and Arizona; south to Mazatlan."

38. **Pinicola enucleator kodiaka** *Ridgw.* KODIAK PINE GROSBEAK.

RIDGWAY, Manual N. A. Birds, 1887, p. 388.

HAB. "Kodiak to Sitka, Alaska. (Also probably southward to higher Sierra Nevada of California.)"

39. **Carpodacus frontalis ruberrimus** *Ridgw.*

RIDGWAY, Manual N. A. Birds, 1887, p. 391, foot-note.

(Provisional description of the Lower California bird.)

40. **Plectrophenax nivalis townsendi** *Ridgw.* PRYBILOF SNOWFLAKE.

RIDGWAY, Manual N. A. Birds, 1887, p. 403.

HAB. "Prybilof Islands, Alaska, and Commander Islands, Kamtschatka."

41. **Ammodramus caudacutus subvirgatus** *Dwight.* ACADIAN SHARP-TAILED SPARROW.

DWIGHT, Auk, IV, July, 1887, p. 233.

HAB. "Marshes of southern New Brunswick, Prince Edward Island, and probably Nova Scotia, and southward in migration along the Atlantic Coast."

42. **Ammodramus maritimus peninsulæ** *Allen.* SCOTT'S SEASIDE SPARROW.

ALLEN, Auk, V, July, 1888, p. 284.

HAB. "Southwestern Florida (Tarpon Springs and Cedar Keys), and Louisiana (Grand Isle)."

43. **Ammodramus maritimus sennetti** *Allen.* TEXAN SEASIDE SPARROW.

ALLEN, Auk, July, 1888, p. 286.

HAB. "Gulf Coast of Texas (Corpus Christi)."

44. **Ammodramus australis** *Mayn.*

MAYNARD, Am. Ex. and Mart and Household Journal, III, Feb. 5, 1887, p. 69.

HAB. "Rare in the Bahamas but constantly resident in Florida."

45. **Spizella pusilla arenacea** *Chadb.* WESTERN FIELD SPARROW.

CHADBOURNE, Auk, III, April, 1886, p. 248; MERRIAM, Auk, V, Oct. 1888, p. 402.

HAB. Migratory or perhaps resident in winter in southern Texas. In summer northward to Dakota.

46. **Junco hyemalis carolinensis** *Brewst.* CAROLINA JUNCO.

BREWSTER, Auk, III, Jan. 1886, p. 108.

HAB. "Mountains of Western North Carolina."

47. **Junco hyemalis shufeldti** *Coale.*

COALE, Auk, IV, Oct. 1887, p. 330.

Type from Fort Wingate, New Mexico.

48. **Peucæa ruficeps scottii** *Senn.* SCOTT'S SPARROW.

SENNETT, Auk, V, Jan. 1888, p. 41.

Peucæa homochlamys SHARPE, Cat. Bds. Brit. Mus. XII, 1888, 713.

HAB. "Highlands of Arizona, New Mexico (Silver Springs)? and Western Texas (Presidio and Mitchell Counties)?"

49. **Pyrrhuloxia sinuata beckhami** *Ridgw.* ARIZONA PYRRHULOXIA.

RIDGWAY, Auk, IV, Oct. 1887, p. 347.

HAB. "Southern Arizona and New Mexico and contiguous portion of northern Mexico."

50. **Pyrrhuloxia sinuata peninsulæ** *Ridgw.* ST. LUCAS PYRRHULOXIA.

RIDGWAY, Auk, IV, Oct. 1887, p. 347.

HAB. "Lower California."

51. **Guiraca cærulea eurhyncha** *Coues.* WESTERN BLUE GROSBEAK.—Revived by Ridgway in Manual N. A. Birds, 1887, p. 445.

HAB. "Western United States, north to Colorado, California, etc., south throughout Mexico" (*Ridgway, l.c.*).

52. **Passerina versicolor pulchra** *Ridgw.* BEAUTIFUL BUNTING.

RIDGWAY, Manual N. A. Birds, 1887, p. 448.

HAB. Lower California and western Mexico (vicinity of Mazatlan).

53. **Euetheia canora** (*Gmel.*). — Recorded from Florida (Sombrero Key) by Merriam in Auk, V, July, 1888, p. 322.

54. **Piranga rubriceps** *Gray.* — Recorded from California (Das Pueblo, Santa Barbara Co.) by Bryant in Auk, IV, Jan. 1887, p. 78.

55. **Progne cryptoleuca** *Baird.* CUBAN MARTIN.—Revived by Ridgway in Manual N. A. Birds, 1887, p. 459.

HAB. "Cuba and southern Florida; Honduras?" (*Ridgway, l.c.*)

56. **Lanius ludovicianus gambeli** *Ridgw.* CALIFORNIA SHRIKE.

RIDGWAY, Manual N. A. Birds, 1887, p. 467.

HAB. "California, especially coast district."

57. **Vireo gilvus swainsoni** (*Baird.*) WESTERN WARBLING VIREO. — Revived by Ridgway in Manual N. A. Birds, 1887, p. 472.

HAB. "Western United States, east to Rocky Mountains; south through central and western Mexico in winter." (*Ridgway, l.c.*) (See also *Allen*, Auk, V, Jan. 1888, p. 32.)

58. **Vireo solitarius alticola** *Brewst.* MOUNTAIN SOLITARY VIREO.

BREWSTER, Auk, III, Jan. 1886, p. 111.

HAB. "Mountains of western North Carolina."

59. **Vireo noveboracensis maynardi** *Brews.* KEY WEST VIREO.

BREWSTER, Auk, IV, April, 1887, p. 148.

HAB. "Key West, Florida."

60. **Dendroica æstiva morcomi** *Coale.* WESTERN YELLOW WARBLER.

COALE, Bull. Ridgway Ornithological Club, No. 2, April, 1887, p. 82.

HAB. "The Western Province of North America."

61. **Dendroica æstiva sonorana** *Brewst.* SONORA YELLOW WARBLER.

BREWSTER, Auk, V, April, 1888, p. 137.

HAB. "Southern Arizona, western Texas (Frontera), and Sonora, Mexico."

62. **Troglodytes aëdon aztecus** *Baird.* WESTERN HOUSE WREN.— Considered by Allen to be the form occupying the Middle Province. (*Allen*, Auk, V, April, 1888, p. 164.)

63. **Cistothorus palustris paludicola** *Baird.* TULE WREN.— Revived by Ridgway in Manual N. A. Birds, 1887, p. 556.

HAB. "Western United States, east to Rocky Mountains (to Great Plains?); south in winter over tablelands of Mexico to Guatemala" (*Ridgway l.c.*).

64. **Cistothorus marianæ** *Scott.* MARIAN'S MARSH WREN.

SCOTT, Auk, V, April, 1888, p. 188.

Type from Tarpon Springs, Florida.

65. **Parus bicolor texensis** *Senn.* TEXAN TUFTED TITMOUSE.

SENNETT, Auk, IV, Jan. 1887, p. 29.

HAB. "Bee Co., Southern Texas; Brownsville."

66. **Parus atricristatus castaneifrons** *Senn.* CHESTNUT-FRONTED TITMOUSE.

SENNETT, Auk, IV, Jan. 1887, p. 28.

HAB. Bee Co., Texas.

67. **Parus carolinensis agilis** *Senn.* PLUMBEOUS CHICKADEE.

SENNETT, Auk, V, Jan. 1888, p. 46.

HAB. "Texas (Bee, Victoria, and Concho Counties)."

68. **Parus stoneyi** *Ridgw.* KOWAK CHICKADEE.

RIDGWAY, Manual N. A. Birds, 1887, p. 591, Appendix.

Type from "Kowak or Putnam River, northwestern Alaska."

69. **Psaltriparus lloydi** *Senn.* LLOYD'S BUSH-TIT.

SENNETT, Auk, V, Jan. 1888, p. 43.

HAB. "Mountains of Western Texas, between the Pecos and Rio Grande Rivers."

The following species, given in the 'Hypothetical List' of the A. O. U. Check-List, are included by Mr. Ridgway in his 'Manual' without the appearance of further evidence of their validity or claim to rank as North American.

Æchmophorus clarkii (*Lawr.*).
Cepphus motzfeldi (*Benick.*).
Xema furcata (*Neb.*).
Oceanodroma hornbyi (*Gray*).
Phalacrocorax perspicillatus *Pall.*
Ardea pealei *Bonap.*
Tringa cooperi *Baird.*
Buteo cooperi *Cass.*
Buteo fuliginosus *Scl.*
Acanthis brewsterii *Ridgw.*
Spiza townsendi (*Aud.*).
Helminthophila lawrencei (*Herrick*).
Helminthophila leucobronchialis (*Brewst.*).
Helminthophila cincinnatiensis (*Langd.*).
Dendroica carbonata (*Aud.*).
Sylvania microcephala *Ridgw.*
Regulus cuvieri *Aud.*

II. ELIMINATIONS.

Species and subspecies, which, as subsequent investigation has shown, should now be withdrawn from the A. O. U. Check-List.

22. **Synthliborhamphus wumizusume** (*Temm.*). — The claim of this species to rank as a North American bird appears to have been based on winter specimens of *Synthliborhamphus antiquus*. (Cf. *Stejneger*, Pr. U. S. Nat. Mus. IX, 1886, p. 524.)

290. **Colinus graysoni** (*Lawr.*). — The North American record proves to have been based on specimens of *Colinus ridgwayi*. (Cf. *Allen*, Bull. Am. Mus. Nat. Hist. I, No. 7, July, 1886, p. 273, and also *Ridgway*, Manual N. A. Birds, 1887, p. 585, Appendix.)

519 *a*. **Carpodacus frontalis rhodocolpus** (*Cab.*).—"This proves to be an individual color phase of *C. frontalis* (or *C. mexicanus frontalis*)." (Cf. *Ridgway*, Manual N. A. Birds, 1887, p. 391, foot-note, and Appendix, p. 594.

576. **Peucæa arizonæ** *Ridgw.*—"This proves to be the same as No. 577, *P. mexicanus* (*Lawr.*). . . ." (Cf. *Ridgway*, Manual N. A. Birds, 1887, Appendix, p. 594.)

589 *b*. **Peucæa ruficeps eremœca** *Brown.* — This proves to be the same as No. 580 *a*, *Peucæa ruficeps boucardi* (*Scl.*). (Cf. *Sennett*, Auk, V, Jan. 1888, p. 40, and *Sharpe*, Cat. Bds. Brit. Mus. XII, 1888, p. 714.)

III. CHANGES IN NOMENCLATURE.

The table presented by Mr. Ridgway on page 594 of his 'Manual' comprises so large a proportion of the recent changes in nomenclature that it will be necessary to include here only those changes made since the publication of his work.

52. **Larus cachinnans** *Pall.* — Considered by Stejneger to be *Larus vegæ* (Palmén). (Cf. *Stejneger*, Auk, V, 1888, p. 310.)

[288]. **Jacana gymnostoma** (*Wagl.*) — Considered by Elliot to be *Jacana spinosa* (Linn.). (Cf. *Elliot*, Auk, V, July, 1888, p. 297.)

306. **Tympanuchus cupido** (*Linn.*). Renamed by Coues *Cupidonia cupido brewsteri.* (Cf. *Coues*, Key, 1887, Appendix, p. 884.)

419. **Nyctidromus albicollis** (*Gmel.*).—The Rio Grande Valley form has been described as *Nyctidromus albicollis merrilli* Senn. (Cf. *Sennett*, Auk, V, Jan. 1888, p. 44.)

602. **Sporophila morelleti** (*Bonap.*). — The Rio Grande Valley bird is considered by Sharpe to be *Spermophila parva* Lawr. (Cf. *Sharpe*, Cat. Bds. Brit. Mus. Vol. XII, 1888, p. 124.)

706. **Harporhynchus longirostris** (*Lafr.*).— The Texan bird has been described as *Harporhynchus longirostris sennetti* Ridgw. Cf. *Ridgway*, Proc. U. S. Nat. Mus. 1887, p. 506.)

719 *b*. **Thryothorus bewickii bairdi** (*Salv & Godm.*). — Now known as *Thryothorus bewickii murinus* (Hartl.). (Cf. *Ridgway*, Auk, IV, Oct. 1887, p. 349.)

DESCRIPTION OF THE BREEDING PLUMAGE OF CHADBOURNE'S FIELD SPARROW (*SPIZELLA ARENACEA*), WITH EVIDENCE OF ITS SPECIFIC DISTINCTNESS.

BY DR. C. HART MERRIAM.

Two years ago Dr. Arthur P. Chadbourne described* a new *Spizella* from southern Texas. His description was based on specimens in winter plumage, from which he assumed the new form to be merely a subspecies of *Spizella pusilla.* Mr. Ridgway redescribed the bird in his new 'Manual of North American Birds,' but was no better off for material, all of his specimens being in fall or winter plumage (though not so stated in the Manual). Mr. Vernon Bailey has recently sent me an adult

* Auk, III, April, 1886, 248.

male *Spizella* in breeding plumage from Fort Pierre, Dakota, which proves to be widely different from any known species of the genus. It is appreciably larger than *S. pusilla*, and its entire head and nape are clear ash-gray, with but a faint wash of rusty over the sides of the crown. Comparison with specimens of *arenacea* in the collection of the United States National Museum leads to the belief that the present specimen represents the previously unknown breeding plumage of that bird. It is so totally unlike *Spizella pusilla* or any other known species of the genus that it cannot for a moment be regarded as only subspecifically separable. At first glance the bird looks like an overgrown specimen of *Spizella atrigularis* of the second year, excepting that the colors are everywhere lighter and clearer.

Description of specimen.—(No. 113,893, U. S. Nat. Mus.) Head and neck all around clear grayish ash, paler below, nearly white under the chin; sides of crown faintly washed with rusty; no rusty spot on side of breast, nor buffy suffusion anywhere on breast; interscapulars pale, the rusty being confined mostly to the scapulars; outer edges of wing feathers whitish; wing-bars barely distinguishable; otherwise much as in the fall specimens from Texas described by Dr. Chadbourne.

*Measurements.** — Culmen from base, 10 mm.; culmen from nostril, 7 mm.; wing, 68 mm.; tail, 67 mm.

Remarks. — Two additional specimens, also both males, collected at Valentine, Nebraska, June 21, 1888, agree with the above in all respects, except that there is little more rusty on the sides of the crown and interscapulars.

Catal. No. U. S. Nat. Mus.	Sex.	Locality.	Date.	Wing.	Tail.	Culmen, from actual base.	Culmen, from nostril
113,893	♂	Ft. Pierre, Dak.	May 29, 1888.	68	67	10	7
113,894	♂	Valentine, Neb.	June 21, 1888.	68	68.5	9.5	7
———	♂	" "	" "	65		10	7

* The wing measurement is taken with dividers, the primaries in their natural position, *i. e.*, not straightened. The tail measurement is taken with dividers, and is made from the point of insertion of the two middle tail feathers to the tip of the longest feather.

DESCRIPTION OF A NEW SPECIES OF WREN FROM THE ISLAND OF TOBAGO, WEST INDIES.

BY GEORGE N. LAWRENCE.

Troglodytes tobagensis.

The upper plumage is rufous brown, of a brighter rufous on the rump; the back is crossed with narrow, dusky, nearly obsolete bands; the wings are of a brighter color than the back, and are closely crossed with very distinct narrow blackish bars; the tail is of a brighter rufous brown than the back and wings, with transverse blackish bars, which are bordered on one side with clear, pale rufous; lores and a streak running back from the eye, of a very pale rufous white; entire sides and under tail-coverts of a rather light, bright rufous; throat, breast, and abdomen very pale rufous white; upper mandible brown, the lower whitish horn color; tarsi and toes light brown.

Length (skin), 4.75 inches; wing, 2.25; tail, 1.65; bill, 0.63; tarsus, 0.70.

HABITAT. Island of Tobago, where it is known as "God Bird."

Type in American Museum of Natural History, formerly in my collection.

It was kindly presented to me by Mr. F. A. Ober, by whom it was collected.

Remarks. The color of the upper plumage of this species is much like that of *T. striatulus*, but the bars on the wings and tail are much more strongly marked; the under plumage is much lighter in color; it is considerably larger; the bill is conspicuously longer and stronger.

DESCRIPTION OF AN APPARENTLY NEW *POOCÆTES* FROM OREGON.

BY G. S. MILLER, JR.

Poocætes gramineus affinis, subsp. nov.

SUBSP. CH.—(Type No. 2503, Coll. G. S. Miller, Jr.; Salem, Ore., May 29, 1887). Similar to *Poocætes gramineus confinis* Baird in respect to the slender bill and narrow dark dorsal streakings, but differing in being

smaller and having the ground color above buffy-brown rather than grayish-brown. All the lighter areas of the plumage (including crissum, under wing-coverts and lining of wings) suffused with pinkish buff.

Dimensions (average of eight adults): wing, 3.04; tail, 2.46; tarsus, 0.79; culmen, 0.46; bill from nostril, 0.31 inch.

HABITAT. Salem, Oregon.

NESTING OF THE PRAIRIE WARBLER, (*DENDROICA DISCOLOR*) IN THE VICINITY OF WASHINGTON, D. C.

BY ELLIOTT BAIRD COUES.

ALTHOUGH common throughout the District of Columbia, this beautiful little bird nests more abundantly in certain suitable localities than in others. One of these breeding-places was discovered by my friend, Mr. T. W. Richards, and myself last spring, and I have pleasure in laying before the readers of 'The Auk' the results of our joint observations.

The locality is along the Potomac River, on the Virginia side, about seven miles from the city, among some small hills from which all the large trees have been cut away, and which are now grown up to a thick scrub of hickory, dogwood, and laurel (*Kalmia latifolia*), with here and there a few young pines and cedars. Here were found breeding within a small area an astonishing number of the birds, perhaps more than fifty pairs. On reaching the place, they could be heard singing on all sides, sometimes several at the same moment. Among them were a few Yellow-breasted Chats (*Icteria virens*), but our whole attention was directed to the Warblers. On our first visit, May 22, we found one nest; but on two subsequent visits, a week later, many more than we cared to take were easily found, with full sets of eggs. They were so numerous and so readily discovered that to take all we desired was simply a matter of walking about in the bushes. The nests were only a few feet from the ground, and were placed preferably in the hickory and dogwood bushes. Only three nests were found in the young pines, and one in a cedar bush. During the heat of the day the

birds—the males at any rate—seemed to seek the shade of the larger pines bordering the clearing where the nests were placed, as we heard many singing from the neighboring woods while we were rambling through the scrub.

From among the large number of nests taken I select for description five which illustrate the variations in construction and situation, adding some remarks on the behavior of the birds as they were robbed of their pretty homes in the necessary interests of science.

Nest No. 1. This is evenly placed upright in the triple prong of a low laurel bush, about two and a half feet from the ground. From among twelve nests, it is the only one symmetrically placed in a crotch, the others being all irregularly supported by twigs either branching at varying angles from a main stem, or, as in some cases, coming to the support of the nest from a different part of the bush. It is composed chiefly of dandelion down, in which are woven a few thin straws and dry leaves. It is lined with very fine bits of straw and a little horsehair. The brim is firm and smooth, as is the rule with the nests of the Prairie Warbler, but a little higher on one side than elsewhere, and is evenly turned of the same materials as the lining. The inside measurement is just about one and three quarters inches both in depth and in width. It contained four fresh eggs. The birds quickly returned after flushing, and while I was wrapping the eggs in cotton, preparatory to removing them with the nest, both parents hopped about very near me, showing apparently little anxiety for the fate of their treasures.

Nest No. 2 is particularly neat and compact, with an even and exceptionally firm brim. It is made almost entirely of dandelion down, closely felted, and further secured with a few straws, and is stuccoed over outside with small dry leaves. The inside is copiously lined with red cowhair, making a marked color contrast with the other materials. It was placed about five feet from the ground, and fixed rather lightly in an irregularly three-pronged crotch, being further fastened to a spray of blackberry bramble which passed under it and between its side and one of the prongs of the crotch. The owners of this nest seemed much more concerned at the rifling of their home than the first pair, and fluttered close about my head, incessantly reiterating a single sharp note of distress. The nest contained four eggs.

Nest No. 3 was placed in a very young pine, about one and a half feet from the ground. It is built against the upright main trunk (which is about as thick as one's finger), and is supported by two small diverging twigs, one of which is nearly under the nest, the other rising on one side of it. The body of this nest is of cotton-wool—probably some dropped by ourselves in an earlier visit; and with this as a basis are woven fine, white, silken fibres of some unidentified plant. Some of the green pine needles also grow out through the substance of the nest and others again are turned back and woven into the cotton, the whole effect being very pretty. Close to the brim a few fine straws are wreathed about, and the lining consists of extremely fine fibres. The inside dimensions are one and a half inches in depth and width. This nest contained four incubated eggs; they closely resemble a set of Field Sparrow's eggs in my collection. The birds were quite shy in this case, and it was only by close watching that they were identified.

Nest No. 4 is situated also in what seems to be the usual position, against the side of the upright stem of a little hickory bush, firmly supported by three small twigs coming off irregularly from the main stem, about half an inch apart, at different angles. It is made less neatly than usual, of a quantity of plant-fibres, a little cedar bark in fine strips, one dried leaf, and several projecting white feathers. This nest is lined with fine straws, a little hair, and a few small feathers. The inside measurements are the same as those of No. 3. There is a considerable gap in the brim where it rests against the upright support, and the whole structure is less cleanly cupped than in other cases. The nest contained four fresh eggs. I almost touched the mother bird before she would fly. She left without a sound, and did not return during the few moments I was there. Perhaps she went with the news in search of her mate, who may have been amusing himself in the shady woods at some distance.

Nest No. 5. This specimen is at once the most compactly woven and most irregularly shaped of the five. The situation also is unusual; it is placed in a mass of grapevine twigs, about three feet from the ground. It is composed of the usual silky plant fibres (perhaps of a species of *Asclepias*), thin shreds of inner cedar bark, and fine grass straws, and is lined with still finer straws and a little horsehair. Besides being the most

irregular, it is also the shallowest nest I have seen, being only about one inch deep inside by one and three-quarters inches across. The shape of the construction no doubt depends upon the site, as the bunch of grapevine twigs affords a foundation very different from an upright or oblique crotch. The brim is also exceptionally formed of seven comparatively large brown feathers about three inches long, all woven in for about two-thirds of their length, excepting one which is woven only at the tip, the rest of its length being simply laid down upon the brim of the nest. Thus six of the feathers protrude for about an inch above the brim, giving it a rough, bristling appearance, especially since it is the quill-end of each of these feathers that sticks up. This nest contained three eggs, incubation of which had just begun. The bird left it quietly on my near approach, and with her mate was seen hopping unconcernedly about as long as I stayed.

The nests here described and also others examined have nearly the same capacity (average depth and diameter both about one and a half inches), but vary considerably in outside measurements, owing in part to the different thickness of the walls, in part to their shape as a whole; the latter is influenced in every case, to a greater or less extent, by the direction of the supporting twigs. Exceptions aside, the Prairie Warbler's nest may be characterized as a neat, cup-shaped structure with a firm, somewhat contracted brim, composed of vegetable down or soft fibre mixed with some fine straws and a few leaves or feathers, lined with hair and very fine straws, and placed in an upright or oblique crotch, preferably one formed in part by the main stem of a bush, from one and a half to five feet from the ground, in a rather open, scrubby, hilly locality. The eggs appear to be oftenest four in number, sometimes only three. In no case were five found. They are too well-known by descriptions in standard works to require notice here. I need only add that the identification of the specimens above described is absolute, and that they now form part of my collection.

RECENT LITERATURE.

Turner's Report of his Ornithological Observations in Alaska.*—We welcome with great pleasure Mr. Turner's long-looked-for report on his ornithological work in Alaska during the seven years (May, 1874-August, 1881) spent there by him as an observer for the U. S. Signal Service. His report covers a wide range of field work and indicates diligent and intelligent labor in an interesting region. The report consists first of the 'Letter of Transmittal,' dated April 25, 1882, the letter being in the nature of a preface or introduction, stating where and under what conditions the work was done, with acknowledgments of assistance in the determination of specimens, etc. From this it appears that the collections were made chiefly at St. Michael's (May 25, 1874–July 14, 1887), Unalashka, and Attu Island. 'Part I.—General Description,' is devoted to an account of the physical characteristics of the country (pp. 13–16). 'Part II.—Meteorology,' is the report on the meteorological observations (pp. 17–59). 'Part III.—Plants,' gives an annotated list of Alaskan plants (pp. 61–85), based largely on Dr. J. T. Rothrock's 'Sketch of the Flora of Alaska,' published in 1867, with, however, numerous and important additions, 'Part IV.—Fishes,' (pp. 87-113, with 15 uncolored plates) has the authority of Dr. T. H. Bean's determinations, with copious and important field notes by the author. 'Part V.—Birds,' occupies pp. 115–196, with 10 colored plates, and is the part of special interest in the present connection. 'Part VI.—Mammals' (pp. 197-208), and a very full index, conclude the volume, which is printed with remarkable accuracy throughout, as regards technical names, for a public document.

Mr. Turner's work on the birds of the region visited was performed under many limitations and difficulties consequent upon the engrossing nature of his other duties. The notes given are, "except in a few instances, the results of my [his] own observations in the field." Several species collected proved new to the North American fauna, and others had previously been special desiderata. The Part devoted to birds consists of two distinct lists, the first, numbering 168 species, and copiously annotated, constitutes the report upon his own special field work; the other is a 'List of the Birds of Alaska,' without notes, and containing all the species "authentically known and recognized" as Alaskan, 269 in number. None are included of which there is "no recorded instance of their occurrence in Alaska."

Mr. Turner's annotations are not to any large extent technical, relating

*Contributions | to the | Natural History of Alaska. | — | Results of Investigations made chiefly in the Yukon | District and the Aleutian Islands; conducted | under the auspices of the Signal Service, | United States Army, extending | from May, 1874, to August, 1881. | Prepared under the direction of | Brig. and Bvt. Maj. Gen W. B. Hazen, | Chief Signal Officer of the Army, | by | L. M. Turner. | — | No. II. | Arctic Series of Publications issued in connection with the Signal Service, U. S. Army. | With 26 Plates. | — | Washington: | Government Printing Office. | 1886[=1888]. 4to., pp. 226, pll. 26.—Birds, pp. 115–196, with 10 colored plates.

mostly to distribution and habits, with occasionally descriptions of bill feet, iris, etc., from fresh specimens, and of plumage, with frequently explanations and comment on the native names, and notes on the uses of the birds made by the natives. The remarks on the breeding habits of many of the species contain much that is new and important. The colored plates, drawn by Messrs. Robert and John L. Ridgway, add greatly to the interest of the work. The species figured, some of them for the first time, are the following: (1) Whiskered Auklet (*Simorhynchus pygmæus;* (2) Kittlitz's Guillemot (*Brachyramphus kittlitzii;* (3) Turner's Ptarmigan (*Lagopus rupestris atkhensis*, ♂ and ♀); (4) Lapp Owl (*Ulula cinerea lapponica);* (5) Hawk Owl (*Surnia ulula);* (6) White-winged Crossbill (*Loxia leucoptera*, juv., first plumage); (7) Cassin's Bullfinch (*Pyrrhula cassini);* (8) Aleutian Leucosticte (*Leucosticte griseinucha);* (9) Swinhoe's Wagtail (*Motacilla ocularis);* (10) Meadow Pipit (*Anthus cervinus);* (11) Alaskan Wren (*Troglodytes alascensis);* (12) Siberian Chickadee (*Parus cinctus obtectus);* (13) Hudsonian Chickadee (*Parus hudsonicus*).

Although the report was transmitted for publication in 1882, in nomenclature and other technical points it appears to have been brought down to the date of printing (1886) given on the title page, the nomenclature and classification of the A. O. U. Check-List* having been adopted for the birds. Obligations for assistance and facilities in the preparation of this part of the report are made to Mr. R. Ridgway, Dr. L. Stejneger, and the late Professor Baird.

In closing this notice of Mr. Turner's important contribution to North American ornithology, it gives us pleasure to announce that other belated reports on ornithological work done under the auspices of the U. S. Signal Servce Bureau may yet be expected, the volume before us announcing as "in course of preparation" a 'Report upon Natural History Collections made in Alaska in 1887–1881,' by Mr. E. W. Nelson; a 'Report of the Expedition to Lady Franklin Bay,' by Lieut. (now Gen.) A. W. Greely; and a 'Report of Observations made in Ungava and Labrador,' by Mr. L. M. Turner, author of the Report now under notice. While it is to be regretted that these reports become so largely shorn of their freshness and interest by these long delays in making them public, it is gratifying to know that the work of these intrepid explorers is not to be wholly lost to science.—J. A. A.

Sharpe's Catalogue of the Family Fringillidæ.†—In a thick volume

*The numbering of the 'Check-List' is also preserved. On this point we beg to suggest that a continuous serial numbering would in all similar cases be preferable, since it shows at a glance, and without the labor of counting, the number of species treated, while the statement that the A. O. U. nomenclature is followed renders the use of the A. O. U. numbers superfluous.

†Catalogue | of the | Passeriformes, | or | Perching Birds, in the | Collection | of the | British Museum. | — | Fringilliformes: Part III. | Containing the Family | Fringillidae. | By | R. Bowdler Sharpe. | London: | Printed by order of the Trustees. | 1888. 8vo. pp. xv + 871, pll. xvi. Forming Vol. XII of 'Catalogue of the Birds in the British Museum.'

of nearly 900 pages, with 16 colored plates, Mr. R. Bowdler Sharpe, the indefatigable custodian of the unrivalled collection of birds in the British Museum, has attempted the herculean task of describing and arranging in due systematic sequence the species of the immense family Fringillidæ, numbering, according to Mr. Sharpe's reckoning, 559 species. All but 30 of these are represented in the collection under his charge, which includes "the types of no less than 125 species," and 9443 specimens. With such rich material at his command, including many additional specimens loaned to him for use in the preparation of his great work, he still expresses himself as unable to arrive at satisfactory conclusions respecting "the value of the various subspecies and varietal forms found in North America." With the acquisition of the Henshaw Collection of North American birds, recently purchased by the British Museum, doubtless Mr. Sharpe will be able to settle, at least to his own satisfaction, many of these doubtful points, on which it is to be hoped he will soon give us his revised opinions, whatever they may prove to be.

Respecting the relation of the Finches and Tanagers, Mr. Sharpe observes: "The line of demarcation between the families *Fringillidæ* and *Tanagridæ* seems to be an extremely arbitrary one, and many genera included by me as Finches are just as likely Tanagers, if there is really a definable character for the separation of the two families. Some distinctive characters may ultimately be discovered in the anatomy of the *Fringillidæ* and *Tanagridæ* which will serve to separate them; but at present the whole classification of these birds is highly unsatisfactory"—an opinion we believe to be widely shared by other ornithologists. Respecting genera and higher divisions Mr. Sharpe says: "No one as yet has propounded a satisfactory classification of the *Fringillidæ*, the difficulty consisting in the complete connection which exists between the various Finches and Buntings. Any one who has worked upon a large fragment of the family must acknowledge that the definition of the genera is difficult and the recognition of subfamilies almost impossible. The *Fringillidæ* naturally group themselves into three divisions — Grosbeaks, Finches, and Buntings; but numerous forms connect them, being referable to the confines of any of the three groups." He deems it possible, however, that their osteology and general anatomy, when fully examined, may afford additional generic characters.

In general character the present volume, in respect to methods of treatment and principles of nomenclature, is so strictly similar to other volumes of this series by Mr. Sharpe, already noticed at length in this journal, that nothing further on these points need be said. We notice that 4 genera, 13 species, and 11 subspecies are characterized as new or renamed, as follows: *Genera:* (1) *Rhodospiza*, gen. nov; type and sole species *Fringilla obsoleta* Licht. (2) *Pseudochloris* = *Orospiza* Cab., 1883, *nec* Kaup. 1829. (3) *Schistospiza*, gen. nov.; type *Emberiza griseocristata* D'Orb. & Lafr. (4) *Rhodospingus*, gen. nov.; type *Tiaris cruenta* Less.—*Species:* (1) *Spermophila albitorquis*, sp. nov., ex Mexico — "similar to *S. torqueola*." (2) *Amaurospiza æquatorialis*, sp.

nov., ex Ecuador, and (3) *A. axillaris*, sp. nov., ex Brazil, both similar to *A. concolor*. (4) *Fringilla maderensis*, sp. nov., ex Madeira. (5) *Chrysomitris sclateri*, sp. nov. = *C. icterica* pt. Scl. (6) *C. stejnegeri* = *C. xanthogastra* Scl. & Salv., *nec* Du Bus. (7) *Sycalis taczanowskii* = *Gnathospiza raimondi* Tacz., nec *Sycalis raimondi* Tacz. (8) *Carpodacus roseipectus* = *C. frontalis* Bp. & Schl. (*nec* Say) and C. *hæmorrhous* Scl. (*nec* Wagl.) (9) *Zonotrichia whitii* = *Z. strigiceps* White *nec* Gould. (10) *Porphyrospiza pulchra* = *Cyanospiza cyanella* Pelz. =? *Emberiza cyanella* Sparrm. (11) *Poospiza boliviana*, sp. nov., ex Bolivia. (12) *Pseudochloris mendozæ*, sp. nov., ex Mendoza—"similar to *P. aureiventris*." (13) *Rhodospingus mentalis*, sp. nov., ex Puna Island—similar to *R. cruentus*.—*Subspecies:* (1) *Guiraca argentina*, sub *G. cyanea*. (2) *Spermophila whiteleyana*, and (3) *S. colombiana*, both sub *S. plumbea*. (4) *S. polionota*, sub *S. cucullata*. (5) *Chrysomitris boliviana* = *C. magellanica* D'Orb. & Lafr., *nec* Vieill. (6) *C. longirostris* = *Fringilla magellanica* Vieill.!—"merely a connecting link between *C. icterica* [Licht. = *C. magellanica* auct. pl.] and *C. siemiradzkii*." (7) *Passer griseigularis*, sub. *Passer domesticus*. (8) *Sycalis jamaicæ*, = *Crithagra* [= *Sycalis*] *brasiliensis* Gosse, *nec* Gm. (9) *Pyrrhospiza kumii* = *P. punicea* Bidd., *nec* Hodg. (10) *Peucæa homochlamys* (= *P. ruficeps* var. *boucardi* Hensh. *nec* Scl. = *P. r. scottii* Sennett, Jan. 1888, ex "Southern New Mexico and Arizona." (11) *Phrygilus saturatus*, sub *P. aldunatii*—"a form of *P. punensis* [Ridg.]," connecting the latter with *P. atriceps*.

Respecting nomenclatural matters, relating more especially to North American birds, the following points may be noted: *Hesperiphona* and *Passerculus*, treated as subgenera in the A. O. U. Check-List, are ranked as full genera; *Hedymeles* is preferred to *Habia*, *Phonipara* to *Euethia*, and *Cyanospiza* to *Passerina*; *Leucosticte* is treated as a synonym of *Montifringillai Pipilo chlorurus* is referred to the genus *Atalaptes* Wagl.; *Spermophila morelleti* is restricted to Yucatan, Guatemala, Honduras, and Costa Rica, and the Texan and Mexican birds, separated as a distinct species, under the name *Spermophila parva* Lawr. From the material we have examined we should consider the Rio Grande form as at best only a subspecies of *S. morelletti*, under the name *S. morelleti parva* (Lawr.). No reference is made, even in the synonymy, to *Guiraca cærulea* var. *euryncha* Coues, now, and as we believe properly, recognized by Ridgway as a tenable subspecies. *Spinus notatus*, of our Check-List (*Carduelis magellanicus* Aud.) is referred to *Chrysomitris icterica* (Licht.) Scl. (= *C. magellanicus*, auct. pl.), a South American species, not found north of Brazil, Mr. Sharpe stating (p. 218, footnote) that the bird figured by Audubon is "undoubtedly *C. icterica* or *C. capitalis* [a subspecies of *C. icterica*], and not the black-winged *C. notata*, which at present is not known to occur within North American limits."

In respect to subspecies of North American birds, Mr. Sharpe, admittedly in some instances, follows American writers, not having sufficient material to reach an independent conclusion; in others he ignores them,

agreeing with them, however, frequently, but often differing from them, with the result of admitting some of our weakest claimants to recognition, while some of those best entitled to such treatment are reduced to pure synonyms! In not a few instances, however, he has exercised his conservatism with excellent discrimination. As in former volumes, binomials are applied alike to species and subspecies, the latter being distinguished by the prefix "Subsp." and a Greek letter. This is the case when the latter are recognized only provisionally, even as "races," and affirmed to be merely "connecting-links."

Here and there are to be noticed some singular rulings involving the principle of priority, as for example, at p. 175, where *Fringilla maderensis* is described as a new species, to be followed on the next pages by "subspecies," described thirty to sixty years earlier, of this new "species," namely: "Subsp. α. *Fringilla morelleti* [Pusch. 1859,"], and "Subsp. β. *Fringilla canariensis* [Vieill. 1817]," all being insular forms of a common stock. We have also *Acanthis exilipes* (Coues, 1861), with a subspecies of it, *hornnemannii* (Holbœll, 1834), described nearly thirty years earlier!

The volume, however, like its long series of predecessors, is too valuable a hand-book, and in general too excellently done, to render criticism a gracious task.—J. A. A.

Shufeldt on the Osteology of the Icteridæ and Corvidæ.—In a memoir of some 40 pages, illustrated with two beautiful plates, Dr. Shufeldt describes in detail the skeleton of our Western Meadowlark (*Sturnella magna neglecta*) and compares its osteology with that of other forms of the Icteridae and Corvidæ.* Selecting the genus *Sturnella* as a standard, he extends his comparison to not only various other forms of the Icteridæ but to the leading types of the Corvidæ, as represented in North America. The "most useful and essential characters" of some half-dozen species in each family, and also of the Fringilline genus *Calamospiza*, are tabulated, and a series of 'conclusions' are given based on the data thus provided. He expressly states that these conclusions are based wholly on osteological characters, but is careful to record his conviction that the "true affinity of forms can only be arrived at through a correct appreciation of the *entire* structure after proper comparisons have been made." He considers that *Xanthocephalus* is the nearest ally of *Sturnella*, and *Icterus spurius* the most remote, among strictly Icterine birds, while outside of the family *Sturnella* "finds its nearest relation probably in *Cyanocephalus cyanocephalus*." *Icterus* finds, as would be expected, "its nearest allies in the genus *Agelaius*." "*Molothrus*," he says, "is a genus of Finches, and as such should be placed in the family Fringillidæ, where it more properly belongs," and where he has "no doubt.... *Dolichonyx* also belongs....

*On the Skeleton in the Genus *Sturnella*, with Osteological Notes upon other North American *Icteridæ*, and the *Corvidæ*. By R. W. Shufeldt, M. D., C. M. Z. S., M. A O. U., Memb. Am. Soc. Naturalists, etc. Journ. Anat. & Phys., Vol. XXII, pp. 309-350, pll. xiv, xv.

Osteologically, *Molothrus* and *Pipilo* are not so very unlike." While all this may be true, so far as the skeleton may afford a clue to affinities, other features, we are convinced, obviously point to a decidedly Icterine affinity, rather than Fringilline, for both *Molothrus* and *Dolichonyx*, particularly the texture and general character of the plumage, their musky Icterine odor, pose, carriage and *habitus* in general. These in themselves are but superficial indices and traits of character, so to speak, which point to an Icterine ancestry, and general Icterine structure. It should be further noted that some of the exotic species of *Molothrus* make a close approach to the genus *Agelaius*, and that *Neospar*, *Curæus*, and *Leistes* are not far removed.

Among the Oscines we should not, *a priori*, look for evidence in the skeleton to decide nice points in affinity so much as to other and more superficial clues to relationship. In further illustration of this general point is Dr. Shufeldt's conclusion that the true affinities of the Magpie are Corvine and not Garruline, although this bird may be, as Dr. Shufeldt puts its, "so far as its skeleton is concerned .... *a Crow*, pure and simple." While it is important to compare birds of allied groups in respect to minute osteological differences and resemblances, the results are obviously, as Dr. Shufeldt so strongly affirms, to be correlated with the general structure, and conclusions, respecting affinities, to be final, must rest on more than a single system of characters.

The plates give figures of skull and pelvis of *Sturnella m. neglecta* and *Pica pica hudsonica*, the pelvis of *Corvus americanus*, and the skull of *Xanthocephalus xanthocephalus* (two examples).—J. A. A.

Shufeldt on the Skeleton of the Carolina Rail.—Another recent paper by Dr. Shufeldt contains a detailed description of the osteology of *Porzana carolina*,* with figures of the principal elements of the skeleton. The pelvis is found to possess many points in common with that of *Geococcyx*, each having a probosis and the same peculiar pattern of the pre-acetabular portion of the ilium. Various rather peculiar modifications of other skeletal elements are pointed out.—J. A. A.

Vernacular Ornithology.†—This is a wonderful world of checks, balances, compensations, and reactionary running-gear. For example, the A. O. U. Committee has upset all the technical names of birds that could thus hardly be dealt with, and Mr. Trumbull has set up all the vernacular names that could be treated understandingly. Thus ornithology fattens and flourishes, as on loaves and fishes; for has not our author wrought a veritable miracle; namely, the filling of a 'long-felt

*Osteology of *Porzana carolina*. (The Carolina Rail.) By R. W. Shufeldt, M.D. C. M. Z. S. 8vo, pp. 16, with 7 cuts in the text. Reprinted from the 'Journal of Comparative Medicine and Surgery,' July, 1888.

† Names | and | Portraits of Birds | which interest gunners | with descriptions | In language understanded of the People | by Gurdon Trumbull | New York | Harper & Brothers, Franklin Square | 1888 | 1 vol. 8vo. pp. viii, 222.

want'? (Not that any one has actually felt that want until the void has been filled; but it existed, and only needed filling to be felt and grow by what it fed upon.) Even ornithologists, however hopelessly mired down in the mazes of their 'shoptalk,' as our irreverent friend terms their technical vocabulary, may find in this book much to their profit. Seeing that theirs is not the only language that is weighted with synonymatic woe, they may take heart again. Many of them have 'viewed with alarm,' as the politicians say, the great load of wordy rubbish that our science carries; the spectacle of a bird with half a dozen generic, a dozen specific names, and several dozen combinations of these two terms has a chastening effect upon the mind. But now, with risen spirits, we can 'point with pride,' like statesmen, to the synonymatic confusion worse confounded which our mother tongue offers to console us, if not to absolve us from our sins. For here we have a thousand and more names for three-score birds! *Et tu Brute*, Mr. Trumbull?

But to be serious, as befits the rich embarrassment with which the author endows us, let us examine this remarkable work. It treats all the game-birds of Eastern North America—the natatorial, gallinaceous, limicoline and paludicole birds ordinarily pursued, for sport by "that helpless but interesting creature, 'the true sportsman,'" or for profit by "our gunners, a class of men who earn a livelihood by shooting birds." These we find to be sixty-one in number. They are first named in strict accord with the rules and regulations for such cases made and provided by the A. O. U. Committee, the dogmas of which deathless doers of deeds nomenclatural are accepted by Mr. Trumbull with orthodox humility. Then comes a brief description, in language 'understanded of the people,' together with a statement of habitat in each case, the range being usually drawn from the same fountain of infallibility whence the sacred scientific names issue: for in the beginning was the word, and the word was with the Committee. With these data comes a portrait in each case — a striking silhouette, or symphony in black and white, struck by the well-known hand of Mr. Edwin Sheppard, who has made better likenesses of more birds than any other American artist now living. Having thus marked down his bird, so to speak, Mr. Trumbull proceeds to bag his game with a wealth and ingenuity of device that excite our unbounded admiration. It is truly an infinite variety that neither age can stale nor custom wither —a bounteousness, a plenitude, a very plethora, the fulness whereof is exhaustless. Allah is said to be invoked by the pious Mussulman under ninety and nine aliases, and history but repeats itself in the myrionymy of the game birds of America. A thousand names, for three-score birds, by a single prophet!

The index occupies a little less than 11 pages, 3 columns to a page, over 50 names to a column. Were it solid, this would represent about 1881 names for the 61 birds; but some are entered twice or thrice, and some columns are not full. Making the very wide allowance of 881 names, there may be supposed to be at the least a thousand, or an average of about sixteen vernacular names to every bird.

It is instructive as well as entertaining to analyze some of the cases, to see exactly how such a result is reached: for it is a lesson in the very genesis of language. The origin of the native names of birds is an illustration of the way names of any other things come to be. Grammar and science and such like have nothing to do with making speech; they talk about it when it has been made; they are the offspring, not the parents, of language — a fact in natural history which some grammarians might ponder to their advantage. Savages and other animals are the real masters of words, — of words which tyrannize over nobody but philologists — of words, which lexicographers fancy they use, when in fact the words are using them all the time, and sometimes very badly. We speak feelingly, being under dictionary bonds ourselves: but let us turn from this digression to the Ruddy Duck, for an example of what we mean.

Erismatura rubida was first called *ruddy* duck in the books by Wilson in 1814; Mr. Trumbull finds for it sixty-six vernacular names. Some of these, it is true, are mere variants or doublets of one another, like *broadbill* and *broadbilled dipper* or *dapper* or *dopper;* but at least forty of the lot are fairly separate and distinct designations developed from almost as many origins, etymologically speaking. They fall in several categories or series, in the examination of which it would appear that almost every personal peculiarity of the fowl, in points of size, shape, dress, manners and habits has been pitched upon for an epithet by somebody, somewhere. Thus, this bird is a *blue-bill*, a *broad-bill*, a *hard-headed broadbill*, a *sleepy broadbill;* it is a *broad-billed dipper*, and a *mud-dipper*, and a *horseturd dipper*—a *dipper*, a *dapper*, a *dopper*, unqualifiedly. It is a *coot*, a *boobycoot*, a *bumblebee coot*, a *horseturd coot*, a *creek coot*, a *sleepy coot*. It is a *sleepyhead*, a *sleepy duck*, a *sleepy brother*. It is a *spoonbill* and a *butterball;* a *spoonbilled butterball*, and a *butterduck*, *butterbowl*, *butterscoot*, *blatherscoot*, *bladderscoot*, and generally a *blatherskite*. It is a *fool-duck*, a *deaf-duck*, a *daub-duck;* a *bull-neck*, *shot-pouch*, *stub-and-twist*, *steel-head*, *tough-head*, *hickory-head*, and a regular *hardhead*. It is a *bristle-tail*, *pin-tail*, *quill-tail*, *spinetail*, *stick-tail*, *stiff-tail*, and a *heavy-tailed duck* altogether. It is a *dunbird*, *dun-diver*, *ruddy diver*, *diptail diver;* a *brown diving teal*, a *saltwater teal*, a *goose-widgeon*, a *widgeon-coot*, and absolutely a *widgeon;* likewise, a *water-partridge;* item, a *leather-back* and a *paddywhack;* it is *hardtack* and a *light-wood knot;* a *dinkey* and a *dickey*, a *greaser*, a *paddy*, a *noddy*, and a *rook*. All of these and other things too, is this worse than dodecasyllabified fowl — this *Erismatura rubida*, which, to crown all with a subtle pleasantry, Mr. Turnbull tells us is even known by its proper book name of ruddy duck among the market gunners and city sportsmen.

No one who is familiar with the bird can fail to see instantly some point about it which has been seized upon instinctively by popular apprehension. As the New York 'Nation' recently remarked, these names are such as any son of Adam out of Eden might have pitched upon, had he been set to the same task that our first parent is alleged to have had imposed upon him. The further we follow our agreeable author, the more impressed we are with the patness and transparent originality of these

popular designations. Like other nicknames and byewords they "just growed." Let us try once more, and take the case of the Scoters which are so common along our Atlantic Coast, confining ourselves to one point, the beak. This is all 'out of perspective,' so to speak, and fantastic in color decoration besides, so that it catches the eye at first sight. This vivid impression upon the thinking-cap of the natural man is instantly translated into speech, and from his tongue-telephone fly such winged words as *skunk-bill*, *muscle-bill*, *plaster-bill*, *picture-bill*, *blossom-bill*, *butter-bill*, *butterboat-bill*, *hollow-bill*, *copper-bill*, and *broad-bill*, *morocco-jaw*, *goggle-nose*, *butternose*, *snuff-taker*, and so on. And it goes without saying that the bill is not the only point about these birds that is available for like purposes.

We do not propose to import Mr. Trumbull's book bodily into 'The Auk,' for that would be to deprive our readers of the pleasure they will find out for themselves in handling this delightful accession to our shelves. Nor would we excite needless alarm: yet, which one of us, though pretty knowing in birds, can identify all the following names without our author's assistance? Alwar grim, assemblyman, badger, barren hen, beetle, blackjack, booby weakhorn, broady, brownie, bunty, caloo, chuckatuck cockawee, cowfrog, darcall, dunter, earl, fizzy, fute, granny, hound, humility, iron pots, jingler, krieker, looby, lord, lousybill maggot snipe, mealybird, mommy, mosshead, mowyer, night-peck, noddy, old smoker, pelick, pike-tail, pilot, pishaug, pulldoo, quandy, quink, rodge, scoldenore, shrups, simp, skirl-crake, smee, smoker, snowl (it makes one creepy to think what a terrible thing a 'snowl' must be!), southerland, sparling fowl, split-tail, squam, stib, timber-doodle, triddler, tweezer, wamp, weaser, whiffler, yelper.

Next after the scholarly, literary complexion of this book the thing we admire most is the author's care in sorting out the names and affixing them to the right bird. A living language is even more elusive and illusory than the dead speech of our technical treatises, if happily such acme of mirage be a natural possibility, and it must have taken a great deal of close work to arrange the synonymy and homonymy. It is not always a case of sixteen names per bird: it is sometimes a matter of sixteen birds of one name. It is the very gist of dialecticism that it shall be pliable, yielding to every impress of geographical environment. A word is a very different thing when twanged through the nose of a Down-east fisherman and smacked by the lips of a Southern darkey; besides which orthoepic changes, different sets of people *think differently* about the same thing, and consequently call it differently. So it may be said of our game birds, with slight paraphrase of a saying of one of the friends of our youth, "*nomen non animum mutunt, qui trans mare volant.* In every case, Mr. Trumbull has been at pains to pin the name down to its proper habitat; a matter, the importance of which to his success in this venture he has evidently appreciated. And not only this: for, since time as well as space has to be taken into the total reckoning, words that are at their full vigor of life are properly distinguished from those that are dead or dying of old age, and those that are just coming into existence.

The serious defects and very numerous faults of this treatise are those which we have not discovered and therefore decline to mention. The wingshooter does not live who never made a miss. On the contrary, plenty of critics continue in existence who do not find what they want in books because they do not know what they ought to want. Our advice to all such, were it asked, would be, to waste none of their precious time in finding fault with anybody until after they have done better themselves. This practice would greatly promote industry among critics, and might convert some of them into authors in due course of time, besides sparing us much illiterate literature. Those who like to sample a bushel of wheat by the grain of chaff which may reward their diligent search will continue to amuse themselves in this manner until they discover the first rudiments of sound book-reviewing. It is a young rooster that would rather put on than take off his gaffs.—E. C.

Allen on the Emargination of the Primaries.—A recent episode, not lacking interest to one with any sense of humor, has recalled attention to the mechanism of the wing and the mechanics of the flight of birds, and has had one useful end in explaining the purpose of the emargination of the primaries in Hawks and many other birds. It seems that Professor W. P. Trowbridge, of New York, eminent in many walks in science, conceived the idea, groundless in point of fact, that the emargination served to 'interlock' the primaries under some circumstances; and in this novel notion he received the support of Professor J. S. Newberry, the distinguished geologist and naturalist. The subject was laid before the New York Academy of Sciences, at a meeting held Oct. 17, 1887,* and resumed Dec. 12, 1887,† when considerable discussion was elicited, and at the same time papers appeared elsewhere.‡ At the meeting of the Academy of Dec. 19, 1887, the subject was resumed, eliciting a warm discussion among the members present.§ The ornithologists, without exception, declined to consider the interlocking theory in any other light than that of a mistake. The outcome of the affair, which has closed the subject to date, was an address by Professor J. A. Allen, before the Academy, Jan. 9,

* Trowbridge, W. P. "A discovery by C. C. Trowbridge regarding the purpose of emargination in the primary wing-feathers of certain birds." Trans. N. Y. Acad. Sci. VII, Oct.-Nov. 1887, pp. 19-21.

† Trowbridge, W. P., Newberry, J. S., and others. "The Mechanism of Flight in Soaring Birds." Trans. N. Y. Acad. Sci., VII, Dec. 1887-Mar. 1888, pp. 75-78.

‡ Newbury, J. S., "The Flight of Birds," Science, Dec. 16, 1887, p. 290.
Coues, E., "The Mechanism of the Flight of Birds," Science, Dec. 30, 1887.
Newberry, J. S., "The Flight of Birds," Science, Jan. 6, 1888, pp. 9, 10, and Trowbridge, W. P., Id., ibid., p. 10.

§ "Discussion of the Mechanics of Bird Flight," by Professors Trowbridge, Newberry Allen, Messrs. D. G. Elliot, G. B. Sennett, E. E. Thompson, and N. L. Britton, and notes on the "Soaring of Birds," by Dr. J. B. Holder. Trans. N. Y. Acad. Sci., Dec, 1887-Mar. 1888, pp. 80-87.

1888.* This important paper, the special subject of the present review, has three main heads:—1. It discusses the general problem of flight, and especially of soaring flight, taking the usual position, that the mechanics of soaring are referable to those of the paper kite, in which the figure of the bird compares to the body of the kite, and its weight to the resistance of the string of the kite. This proposition was very fully discussed and illustrated in an unknown paper by an unknown man, thirty years ago. 2. A concise description of the eighteen known muscles of the forearm and manus of birds, and their effect in moving the parts upon which they lie.‡—3. The special consideration of the emargination of the primaries, forming the body of the paper. This matter is so interesting, not only in reference to the 'interlocking' theory, but in its general bearing, that we transcribe it in full for the readers of 'The Auk,' who will no doubt agree with us as to its entire soundness:

"It has been intimated that the emargination in the primaries of hawks and other soaring birds gives evidence of interlocking, being apparently a provision for this purpose. That it has suggested the theory of interlocking is quite evident, but it has no further bearing on the subject. That it is not distinctively characteristic of soaring birds has been abundantly shown. The purpose of this structure evidently varies in different birds.

"In some birds, as the woodcock, various genera of pigeons, fly-catchers, and humming-birds, the falcate tips of the outer primaries give rise to musical sounds, of somewhat varying character in different species, due to the rapidity and angle with which they strike the air in rapid flight, the emission of the sound being voluntary on the part of the bird, and often forming a part of its amatory demonstrations, as does song or certain peculiar notes in many song-birds. In herons, many water-birds, hawks, eagles, owls, vultures, etc., it is apparently the elimination of a part of the vane which, if present, would prove only an impediment and an obstruction in flight. The emargination extends, it will be observed, from the point where, in the fully extended wing, the inner vane fails to fill the entire space between two contiguous quills. The vane becomes very weak and flexible along its edge, and requires the support of the overlying feather to keep it smooth and intact, so that were the vane to retain its full width to the tip of the feather, on which the air impinges with the greatest force in flight, it would have no support from the contiguous feather, and would be too weak to resist the air; it would consequently be more or less rolled upward at its free edge and prevent the free closing of the tips of the feathers; it would not be firm enough to give much sustaining power, would be in the way, and become folded and rumpled in the closing of the wing. Therefore just that useless and obstructive

* Allen, J. A., "On the Structure of Birds in Relation to Flight, with Special Reference to Recent Alleged Discoveries in the Mechanism of the Wing," Trans. N. Y. Acad. Sci., Dec. 1887-Mar. 1888, pp. 89-100.

† Davidson, R. O., "A New Theory of the Flight of Birds," 8vo., paper. Washington, 1858, pp. 28, plate.

‡ See paper in present Auk, p. 435.

portion is the part eliminated by the emargination of the vane. To give the portion of the vane thus cut away sufficient strength and breadth to add its share to the sustaining power of the wing, the vane would have to be thickened to make it more rigid, and broadened to fill the wide interval between the tips of the feathers, thus making a heavy club-shaped clumsy tip to the feather, and obviously decreasing the efficiency of the wing as an organ of flight.

"Further evidence of the pertinency of this explanation of emargination is afforded, when we recall the fact that emargination is confined to a certain type of wing, and that when absent the wing is of an entirely different type as regards its general form. The wing of the frigate-bird well illustrates the form of wing in which there is no such emargination. It is a very long, acutely pointed wing, in which the first primary is the longest, the second, third, and all of the following being successively shorter, and all sharply pointed, so that when the wing is fully extended there is practically no open space between the tips of any of the primaries.

"There are three principal types of wing in relation to its form:

"I. A very long, pointed wing, in which the first primary is the longest, and all the outer primaries are narrowed toward the tip, and successively decrease rapidly in length, rendering no emargination necessary. Examples: man-of-war birds, albatrosses, shearwaters, gulls, terns, plovers, sandpipers, swallows, swifts, etc.

"II. A short, rounded wing, in which the tip is formed by the four or five outer primaries, which are sub-equal in length. Here, owing to the shortness of the wing, the tips of the primaries are not separated when the wing is fully extended. Here no emargination is necessary, and none exists. Examples: sparrows, and the smaller song-birds in general; also rails, quails, tinamous and many grouse.

"III. A long, pointed wing, but in which the tip is formed not by either the first or second primaries, but by the third, fourth, and fifth, and in which the six or seven outer primaries form the point of the wing, and are graduated in length from the longest, which is about the fourth or fifth, outwardly to the first, and inwardly to about the seventh or eighth. This form of wing, in which emargination is present, is typically exemplified in hawks, eagles, buzzards, vultures, ravens, crows, etc.

"Between these types of wing there is every stage of intergradation, with corresponding variation in the emargination of the primaries, in the form of wing characterized by this structure. The true falcons have a very pointed wing, in which the longest primary is the second; the first is somewhat shorter, and is the only quill showing emargination. In this the emargination is slight, and extends for only about two inches. If we remove the first primary, we have a wing in which the outer primary is the longest, the next succeeding primaries being each shorter than the one next in front, resulting in a long pointed wing, in which the primaries are narrowed toward the tip, and recede successively in length, giving the same form of wing we have in the man-of-war birds, in swallows,

swifts, humming-birds, night-hawks, etc., in which there is never any emargination.

"Again, the emargination varies in extent, being limited in many birds to the first primary alone, and to the extreme apical portion of this; in others it occurs on the apical portion only, say for two to four inches, of perhaps the outer four to six primaries; while in very many birds, including the turkey buzzard and its allies, and many hawks, it extends to the basal third or fourth of all the outer primaries.

"Having now shown that interlocking does not and cannot take place, it may be worth while further to point out that it is unnecessary.

"In a soaring bird, no great muscular tension is called into action. The large pectoral muscles, which move the wings up and down, are in a state of equilibrium, and under very slight tension, not more than are the muscles of a man's arm when the arm is in an ordinary position of rest. The mechanism of the bony framework is such, as has been already shown, that the wing is kept extended in such a way that there can be only very slight strain on any of the numerous muscles of the wing itself. The extension of the primaries is automatically effected by the extension of the wing, and results in no special strain, when once the wing is fully extended, upon any of the muscles whose function is to flex and extend the outer or phalangeal segments of the pinion. Hence the comparison made at the meeting of December 12th, of a man's arm held extended at a right angle to the body, in an unnatural position, with a bird's wing held extended in soaring, in a perfectly natural position, was wholly irrelevant.

"The hypothesis of the interlocking of the primaries during protracted soaring, to conserve energy and lessen fatigue, has not only no basis in fact, but is entirely gratuitous."—E. C.

Birds of Morris County, New Jersey. — Nearly a year ago the list to which attention is now called* was published in a local newspaper, and as the distribution of New Jersey birds is known inferentiallyrather than by any recent and reliable published information, such an excellent list as the present one seems worthy of wider notice. It is the result of over four years' work in the northern part of the State and numbers 205 species and subspecies, not a large number, to be sure, but it must be remembered that Morris county is inland, and the usual array of water birds that goes to swell many lists is therefore wanting, although some occur as stragglers. The summer residents are mostly Alleghanian with a considerable sprinkling of Carolinian forms, such as *Cardinalis cardinalis*, *Seiurus motacilla*, *Mimus polyglottos*, *Thryothorus ludovicianus*, *Parus bicolor*, and others less distinctive, while little needs be said of the migrants and accidental visitors recorded. Few local lists can boast of two species relegated to the hypothetical list of the A. O. U. Check List A specimen of *Helminthophila lawrencei*, and two of *H. leucobronchialis*

*A List of Birds of Morris County, New Jersey. By E. Carleton Thurber, True Democratic Banner, Morristown, N. J., Nov. 10, 17, 24, 1887.

are here recorded, and reference is made to the type of the former species secured just over the line, in Essex County. The brief annotations refer mostly to the abundance of the species and the dates of rare captures are usually given. There are four species that one would expect to find included which have evidently not been met with by our author, *i. e. Empidonax pusillus traillii*, *E. acadicus*, *Geothlypis formosa*, and *Turdus aliciæ* (including, perhaps, *bicknelli*). These are found near New York City, where the fauna may be said to be almost identical with that of Morris County, but with these exceptions the list seems complete save for the probable future records of accidental visitors. Though *Porzana carolina* is called a "common migrant," it has been known to breed in the County near Whippany, and it may breed abundantly. *Ammodramus candacutus* is said to be "not uncommon." Occurring as it does on fresh water marshes, the question naturally suggests itself, may this not be *nelsoni*? Further comment seems unnecessary. The list bears evidence of unusual care in its compilation, and is worthy of more prominence than is found in the columns of a local newspaper. —J. D., Jr.

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Vereins in Wien, 1888.) (3) Ornithologische Notizen aus Salzburg (1887). (Ibid., 1888.) (4) Neue Arten und Formen der Ornis Austro-Hungarica, mit genauen Nachweisen und kritischen Bemerkungen, (Ibid., 1888.) (5) Alpenmauerläufer (*Tichodroma muraria* L.). Ibid. 1888.)

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GENERAL NOTES.

Note on the Correct Name of Symphemia semipalmata inornata Brewst.—In 'The Auk' for April, 1887 (Vol. IV, p. 145), Mr. Brewster described the western form of the Willet under the name *Symphemia semipalmata inornata*. In discussing the synonymy of the new form he concludes "(4) that *Totanus speculiferus* Cuvier (R. A., I, 1817, 351 [*lege* R. A. 2d ed., I, 1829, 531]) and Pucheran (R. et M. Z., III, 1859, 569 [*lege* R. et M. Z. 2e sér., III, 1859, 369]) is not now determinable." It turns out, however, that the two forms of the Willet had long since attracted the attention of Dr. Sclater (Ibis, 1862, p 199, footnote), who, in examining specimens taken in Florida by Mr. G. C. Taylor, was "inclined to consider them distinct. The larger variety," he adds, "seems to have already been called by

Cuvier *Totanus speculiferus* (Règn. An. ed. 2, i, p. 531; Pucheran, Rev. et Mag. de Zool, 1851, p. 369), and should therefore be termed *Symphemia speculifera*." On referring to Cuvier I find that this author gave only a very brief description of the specimen which served as the basis of his *Totanus speculiferus*, although he says it stands higher on the legs and has a longer bill than *T. semipalmatus*. Pucheran, however, in 1851, in his important paper 'Etudes sur les types peu connus du Musée de Paris,' described with great detail Cuvier's type, which description shows it to be beyond doubt a winter example of Mr. Brewster's subspecies *inornata*. He especially says it is to be distinguished from "*Totanus semipalmatus* Tem." by the length of the bill, while his measurements of the specimen nearly equal the maximum for *inornata*, as given by Mr. Brewster.

It may be noted that none of the American citations of Cuvier and Pucheran, as given above, prove to be correct, indicating that these references have been generally given without verification.

The *Totanus crassirostris* Vieill. (1816), as Mr. Brewster claims, is unidentifiable, though pointing to *speculifera*, the bill being given as 2.50 inches long. The larger Western Willet should therefore stand as *Symphemia semipalmata speculifera* (Cuv.).—J. A. Allen, *Am. Mus. Nat Hist., New York City.*

A Second Maine (and Fourth New England) Specimen of Swainson's Hawk (*Buteo swainsoni*).—Through the kind offices of Mr. Manly Hardy I have just secured a Swainson's Hawk, which was killed about eight miles from Bangor in the town of Glenburn, Maine, May 19, 1888. Like the Gouldsboro (Maine) specimen which I obtained last year,* it is of the melanistic type, but not entirely black. It was sent in the flesh to Mr. S. L. Crosby of Bangor, and was examined by Mr. Hardy before the skin was removed.—William Brewster, *Cambridge, Mass.*

Nesting of the Black Swift.—On June 6, 1888, I collected a set of five eggs of the Black Swift (*Cypseloides niger*). As far as I am aware, this is the first set of this species collected. The nest was in the cornice of a small wooden building on Yesler's Wharf of this city. The cornice was of the kind usually known as store cornice, the interior being divided into compartments by the rough brackets to which the planceer, facure, and deck were nailed. At one end of the cornice the deck or top was sprung up so as to leave an opening into the first compartment, in which the nest was made. The compartment was about twenty inches square.

The nest was composed of leaves, which were yet green, bits of paper, chips from a planing-mill near by, a few horsehairs, and straw, and was surrounded by a large quantity of loose straw. The leaves and paper formed the lining of the nest.

The eggs were white and were fresh, the birds having been sitting only two or three days. As will be seen, they are very uniform in size: they measure 1.00 × .71, 1.00 × .70, 1.02 × .70, .96 × .68, .96 × .68 inch.

*Auk, IV, 1887, p. 160.

On June 28 I collected another set of four eggs of the Black Swift. This set was taken from the same nest as the former one, and presumably from the same pair of birds. Incubation had commenced, the embryos having just begun to form. The nest was composed of the same kind of materials as before, with the addition of a small piece of the tinfoil used to cover tobacco. The dimensions of the eggs are as follows: .96 × .67, .98 × .71, .99 × 69, 1.00 × .71 inch.

When this second set was taken the female had to be pushed off the nest in order that the eggs might be obtained.

In neither of these nests were the materials glued together with saliva, there being no trace of saliva about the nests. The nests were put together so loosely that they could not be preserved. Portions of the materials of which they were composed were, however, collected.

These birds are rather abundant here, and usually nest in the cornices of buildings near the water front, in the business part of the city. I have known of several nests which were built in galvanized iron cornices. It is, however, usually impossible to get at these places. I have tried for several years to obtain specimens of the eggs, but till now have found it impossible, although I have torn open three different cornices in hopes of getting them. — M. H. GORMLEY, *Seattle, Washington Territory.*

Xantus's Becard (*Platypsaris albiventris*) in the Huachuca Mountains, Southern Arizona.—On June 20, 1888, I secured an adult male, in breeding plumage, of this species in the pine forests of the Huachuca Mountains, at an elevation of about 7500 feet, and seven miles north of the Mexican boundary. (See Ridgway's 'Manual of North American Birds,' p. 325.) I am certain there were a pair of these birds, as I heard their very peculiar notes in different places at the same time, but the locality being so extremely rough and broken I only secured the one above recorded. Several times while collecting at high altitudes I have heard bird notes that I thought were these, but they were always on almost inaccessible mountain sides. Their note reminds one of the song of Stephens's Vireo (*Vireo huttoni stephensi*), but is not so long continued, and is harsher. From observing the actions of the bird I killed, I am sure its mate was in the vicinity, and probably nesting, although I have since carefully searched the place without success. This species will doubtless be found breeding in Arizona, as was *Trogon ambiguus*. — WILL. W. PRICE, *Riverside, Cala.*

Coccothraustes vespertina in Nebraska.—On March 12, 1886, a flock of eight Evening Grosbeaks appeared in this locality, and these are the only ones that have been observed by myself, or by anyone so far as I know.

I first observed them about 9 A. M. They were then feeding on the samaræ of the box elders, and were very easy to approach. The flock consisted of seven females and but one male. I secured the male and one female. The contents of both their stomachs consisted entirely of box

elder seeds. Their habits of feeding were exactly as given by Mr. Keyes in the January 'Auk' (p. 114). The remaining flock of six females stayed for three weeks and then departed.—GEO. A. COLEMAN, *London, Nemaha Co., Nebraska.*

Tameness of the Pine Siskin. — On April 29, 1888, while walking near Oak Hill in Newton, Mass., I noticed two Pine Siskins (*Spinus pinus*), about a heap of hops by the roadside. One of them flew away at my approach, but the other remained there feeding, and, though perfectly able-bodied and in good condition, was remarkably tame. I stood watching him some time. After a while I reached out and stroked him, and finally succeeded in catching him in one hand. When I let him go, he flew off to some distance. Before I caught him, he went and perched in a bush near by and apparently went to sleep, putting his head over his left wing under the scapulary feathers, so that it was completely hidden. When I approached too near, he would take his head out and look at me and then put it back again when I drew back. The ground about there was sprinkled with droppings, showing that the birds had probably been there for some time. Was this bird affected by the hops, or is there any other explanation of his curious conduct? The hops were to be used as dressing for a field of grass. — FRANCIS H. ALLEN, *West Roxbury, Mass.*

Further Notes on Seaside Sparrows.—A series of six specimens of Seaside Sparrows kindly loaned me for examination by Mr. G. S. Miller, Jr., of Peterboro, N. Y., includes four specimens from Sapelo Island, coast of Georgia, one from Cedar Keys, and one from Corpus Christi, Texas. The Corpus Christi specimen (male, May 26, 1886) is typically *Ammodramus maritimus sennetti;* the Cedar Keys example (female, Jan. 30, 1880) is typical *A. m. peninsulæ*, as is also one of the four specimens from Sapelo Island, the other three being *A. maritimus.* All of the Sapelo Island specimens were taken in December, examples of both forms being labelled Dec. 14, 1887. Mr. Miller kindly wrote me concerning the Sapelo specimens before sending them, as follows: "They all seem to be true *A. maritimus*, excepting one female taken Dec. 14, which is, so far as I can see, typical *peninsulæ.* It agrees in almost every particular with a specimen taken at Cedar Keys, Fla., which I should refer without hesitation to this form. Should the Sapelo Island specimen prove to be *peninsulæ*, it would extend the range of that form considerably."—J. A. ALLEN, *Am. Mus. Nat. Hist., New York City.*

A Second Instance of the Breeding of the White-throated Sparrow in Eastern Massachusetts.— On the 13th and 14th of June (1888) I found a White-throated Sparrow (*Zonotrichia albicollis*) singing in Wakefield, Mass.; and on the 16th and 17th, in the same spot (a bushy roadside swamp), I saw a female of the same species. The male was in full plumage, and the identification was absolute in every case. I saw nothing more of either bird, as I left home on the 18th and did not return

till July 11; but the presence of the pair (within a radius of two or three rods) for five days in the middle of June would seem to leave no doubt of their breeding. The only previous record of such an occurrence, so far as I am aware, is that of Mr. Browne, in the 'Bulletin of the Nuttall Ornithological Club,' Vol. V, p. 52.—BRADFORD TORREY, *Melrose Highlands, Mass.*

A Third Specimen of Lawrence's Warbler.—While collecting in a piece of low, swampy woods at Rye, Westchester Co., N. Y., on Aug. 31, 1888, I shot a Warbler, which, on the identification of Prof. J. A. Allen, proved to be a Lawrence's Warbler (*Helminthophila lawrencei*). This bird, an adult male, is in excellent plumage. In comparison with the specimen in the American Museum of Natural History, taken at Hoboken, N. J., the throat patch is a more intense black while the black stripe through the eye is broader, being of exactly the same extent as in *H. chrysoptera*. In its actions it resembled *H. pinus*, though, of course, I did not wait long to study its actions. The stomach contained very small beetles and larvæ.

This is the third specimen of this bird to date.—CLARK G. VOORHEES, *New York City.*

Notes on Helminthophila leucobronchialis.—On May 26, 1888, I captured a male *Helminthophila leucobronchialis* which from comparison with the original description appears to be typical. Length 4.80, spread 7.60 inches. The testes were 5-16 inch long. The stomach contained insects only. Attracted by a new song, I found it among the branches of an apple-tree close by. Apparently it was alone. During the half-hour I watched it, it alighted in the apple-trees in the orchard it was in every time but one, then, for a moment only, on a small hickory. The locality was dry, all the neighborhood being scrubby pasture with very little woodland.

On May 29 I heard this song again, and soon found the bird among the branches of a gigantic and solitary hickory in a high, dry, scrubby pasture-lot. It was extremely shy, but was unwilling to leave the spot. On the 31st I again saw it, feeding and singing in the same tree, and equally shy. Patient watching during three hours revealed nothing more than occasional short and apparently inquisitive flights to several hickory saplings growing about a hazel thicket in the edge of a bushy tract adjoining this pasture. Its errand there seemed to be more with an eye to something below in the bushes than for the sake of feeding. June 3, after ascertaining the bird's presence, I secreted myself and waited. Several times did it come in my vicinity, but only casually as it were, never evincing the least alarm; yet it certainly made the rounds of the aforementioned saplings more frequently than before. At last with more eagerness than usual it descended, and disappeared in the bushes (an unusual occurrence) where it apparently took possession of its nest, as in less than half a minute thereafter an *H. pinus*, the first I had seen in the neighborhood, flew hastily from about the same place. This occurred at

about sunset, and between that and dark *leucobronchialis* did not again appear in sight. I had previously had it in view, or could hear its song, almost continuously. On several days following I searched this thicket thoroughly, as it seemed, and once succeeded in flushing a *pinus*, but could not even then find its nest. In company with *pinus*, *leucobronchialis* cautiously approached and surveyed me for a short time, then departed with no apparent misgivings. At all other times *leucobronchialis* was near by and always reconnoitred the track of my careful search when I had moved to some distance, then, apparently satisfied, pursued its avocations as before.

I was not able to visit the spot again until June 17, and neither then nor since have I found this *leucobronchialis*, but I did find a brood of several young being fed by an *H. pinus*, possibly the result of a union between the two. These two birds were the only ones of the genus which I had at any time detected in the locality.

During this time I had seen four other *H. leucobronchialis* (*i. e.* six in all, this season), and in widely separated localities, as follows:

June 1, one was seen for a moment only in a hickory tree whence it flew into an adjoining alder swamp. It was never seen afterward.

June 4, one in the edge of a dry woodland was watched some time, but never seen again, although upon a subsequent visit some time was spent in hunting for it.

June 10, two were seen by a friend and myself. One, among the branches of the taller trees in a pasture-lot adjoining a dry wood, was again seen June 19 and July 7, this being the latest date I have heard its song or seen the species. The other was seen about one hour later in a similar situation, but fully three-quarters of a mile from the first. I saw this one again June 22. It was always in full song, otherwise I might never have detected it.

The peculiarities of the species are numerous, especially its song, so that, aided by my field-glass, identification was perfectly satisfactory to me in each instance. Moreover, its leisurely movements in conspicuous places always gave good opportunity for study. By actual count all these birds with the exception of the one shot May 26 were seen in hickory trees seven times to three in trees of all other species combined. Its flight on many occasions was protracted to at least 400 feet, always, when so continued, to a tree towering far above the surroundings.

I have heard of one other *H. leucobronchialis* taken in Connecticut this year, at Stamford by a Mr. Hoyt.—EDWIN H. EAMES, *Seymour, Connecticut.*

Bachman's Warbler (*Helminthophila bachmani*) **at Key West, Florida, in July and August.**—The following extracts are from two letters received by the writer from Mr. J. W. Atkins, of Key West, dated July 30 and August 9 of the present year.

"I have the pleasure of announcing the capture on the 26th and 28th (July) and to-day of nine Bachman's Warblers, seven of the nine being

well-marked examples, the other two being undoubtedly young birds without any black on the throat and breast, and two other birds taken in company with the foregoing about which I am doubtful.

"On the first mentioned date (26th July) I saw about two dozen of the birds, and could have taken more of them if I had been better prepared, but I had a large gun and mutilated several birds beyond use besides the four taken in a preservable condition. On the 28th I got one finely marked adult male, two young females without black on throat or breast, and two others of the genus that may not be Bachman's Warblers. The same day I saw two others. To-day (July 30) I took two fine adult males and saw two others.

"The Bachman's Warbler collected last year was taken on August 30, which would seem to give the species something more than a month's time to pass at this place; perhaps longer, as I had not been in the woods for ten days previous to the 26th (July), the first day they were noticed this year."

Mr. Atkins then expresses regret at the probability of his being unable to collect or observe further, at least for the present, his duties in connection with cable service to Cuba and the West Indies demanding his constant attention.

Happily, however, he was able to make further investigations and the following quotations from his letter of August 9, 1888. speak for themselves:

"I could not resist the temptation to follow up the beginning made with the Bachman's Warblers, so I took an hour with them at break of day on the 6th, 8th, and today (August 9).

"On the 6th (August) I got two birds and saw about two dozen others; broke my gun and had to leave them unmolested. On the 8th (August) I got five and saw about a dozen beside, not more than that number though. This morning (August 9) I got two and saw another half dozen. I found yesterday's [August 8] and today's [August 9] birds in a wild fig tree, feeding upon its fruit, and a walk over the ground where they had been seen on the other occasions failed to disclose any others. Yesterday there were quite a number of other *Helminthophilæ* seen with the Bachman's Warblers, today not more than a dozen were seen. I do not know what they were; didn't collect any of the others because I could not have taken care of the skins. The call-notes made by both the Bachman's Warblers and the other *Helminthophilæ* were similar, being a sharply uttered *twee* or *chee*. I am certain the Bachman's Warblers did not breed on this island. As to their having bred on the outlying and adjacent islands, I, of course, cannot say, but I believe them to have bred further away. For if they had bred near Key West I ought to have found them earlier than July 26, it being natural to suppose that, being so near, a few stragglers, at any rate, would have come along earlier than the main body, which seems to be passing now. I believe these early birds bred somewhere on the East Florida Coast — that is, if they are too early to be identified with those birds found as reported in the last 'Auk' (Vol. V, p. 323) at Lake Pont-

chartrain, and which were said to have passed on to the northward from there. Two years ago, perhaps not so long (not having' my 'Auk' to refer to I cannot tell), a Bachman's Warbler was sent to Washington from Sombrero Light House by its keeper, and as the Sombrero is eastward and north of Cape Sable, this would show a tendency of the species to migrate *up* the East Coast, taking Cape Sable and its vicinity as the diverging point.

"I will send you the entire series of Bachman's Warblers in a few days; the collection now numbers sixteen well marked adults, two young females, and two others that I at first thought to be Bachman's Warblers, but now feel sure are not."

Mr. Atkins concludes his letter of August 9 with some very instructive notes on the migrations of other Warblers, Vireos, and the like, at the point where he is located, which notes I hope to present to the readers of 'The Auk' at an early day in a more detailed manner than present space permits.—W. E. D. Scott, *Tarpon Springs, Florida.*

Dendroica coronata at Key West in Summer.—Mr. J. W. Atkins has forwarded to me for examination an individual of this species taken by him at Key West, Florida, on July 28, 1888. It is an adult female bird in very worn plumage.—W. E. D. Scott, *Tarpon Springs, Florida.*

Breeding of the Cerulean Warbler (*Dendroica cærulea*) in Niagara County, New York.—On May 30, 1888, while passing through a large wood, I noticed a nest on a fork of a horizontal limb of a small basswood tree, which I took to be the nest of the Least Flycatcher (*Empidonax minimus*). I also saw a pair of birds in a large tree, near the one containing the nest, but I was unable to identify them. On June 8 I found the bird on the nest, and on its leaving I shot it and was surprised to find that it was a female *Dendroica cærulea*. The nest contained three eggs when secured, but one or two fell from the nest when the bird left it. Incubation was nearly complete, and it was with difficulty that I succeeded in saving two good specimens and the broken shell of the third. I did not succeed in securing the male, but an hour before in another piece of woods half a mile distant I had shot by mistake another male of this species, which was also a surprise, as I had found but two of this species during ten years' collecting in this County, and they were both male birds, taken May 10, 1882, and May 11, 1883, and not over ten rods apart. I had come to the conclusion that they were to be found here only during migration, and rarely then. On leaving the woods after securing this nest, we passed into an old pasture lot or clearing in which were a few small trees left standing, and while digging out a set of four eggs of the Yellow-bellied Sapsucker (*Sphyrapicus varius*) I noticed another pair of *D. cærulea*, and on watching them found they were building a nest in a small basswood, also on the fork of a horizontal limb, about twenty feet from the ground and eight feet out from the trunk. I am so particular in describing the position of these nests, as in 'North American Birds,' Baird, Brewer and Ridgway, Vol. I,

p. 236, Audubon is quoted as finding one "placed in the forks of a low tree or bush, partly pensile, projecting a little above the twigs to which it is attached, and extending below them nearly two inches," while these are placed on the top of the limb, which is from one half to three quarters of an inch in diameter, and the nest does not extend below the centre. The dimensions of the nest are outside two and a half inches across by two inches deep, inside one and seven eighths by one and a quarter inches.

Audubon is also quoted as saying, "The eggs are five in number, of a pure white with a few reddish spots about the larger end," while these are bluish white with a wreath of reddish brown and lilac spots about the larger end, and small brown dots over the whole egg. The dimensions of the two saved are .70 × .52 and .71 × .52 inches. I sent the male and female *D. cærulea* to Dr. A. K. Fisher, of Washington. On June 23 I secured the second nest and eggs, also the female, but did not succeed in finding the male. The nest contained three eggs, also one egg of the Cowbird. These eggs are not as large as the first, measuring only .64 × .50, .63 × .49, .64 × .50 inches. The general color is the same, but the wreath about the large end is not as distinct. The nests are made of the fibre of the thistle and sparingly covered with lichens, and lined with a brown hair-like substance that I do not know the name of. On June 30 I found another nest in a piece of woods about one mile from where I took the others, but it was too high to be secured, and from the action of the female I concluded it contained young. On July 4 I secured three adult birds, one male and two females, also three young; all but one female were taken within twenty rods of where I secured the two nests and eggs. One female and two young were sent to Dr. A. K. Fisher, and one male and female and one young were sent to the Smithsonian Institution. July 7 I visited the same place and saw another brood of three young which seemed to be able to fly as well as the adults, although the old birds were feeding them; I did not try to secure any of these. July 14 I could not find one of this species at the same place. July 21 I found a late brood, but secured only the adult female and one young which I sent to the American Museum of Natural History, New York City, at the request of Mr. J. A. Allen. All the young of this species taken resemble the adult female with the exception that they have yellowish downy feathers on the breast and edge of wing.

On July 28 I again visited the same place, but did not see a Blue War bler and came to the conclusion that they had moved southward.

In 'North American Birds' Dr. Brewer says that he has been informed that this species "abounds and breeds in the vicinity of Niagara Falls," although he does not say that any nests or eggs were secured, and as he also says "little is known of its breeding habits," I have here been more explicit in regard to my observations than I otherwise should have been.—J. L. Davison, *Lockport, Niagara County, N. Y.*

Dendroica cærulea at Seymour, Connecticut.—On May 10, 1888, I shot a fine adult female Cerulean Warbler from a flock of Parula Warblers

with which it seemed to be associating. The locality was dry and somewhat elevated, with a growth of high hard-wood trees and but little underbrush. With its companions, the bird kept chiefly among the topmost branches where I watched it for twenty minutes until, leaving the Parulas, it gradually descended into the lower branches to some fourteen feet from the ground, when I shot it.

It measured: length 4.60, spread of wings 7.55 inches. Its stomach contained insects only. The largest ova in the ovary were about the size of No. 12 shot.—EDWIN H. EAMES, *Seymour, Conn.*

An Albino Blackpoll Warbler.—A male specimen of *Dendroica striata* taken by the writer at Upper Chichester, Delaware Co., Penn., May 12, 1888, during migration, displays such a remarkable variation of plumage as to merit special mention.

The entire crown, with the exception of three or four small black feathers over the eyes, is pure white, the edges of the feathers tipped with cream color which is more decided fringing the neck. The upper tail-coverts and rump are pure white, extending high up on the back and passing irregularly through the interscapulars and joining the white on back of neck and crown; rather silky across the rump. The interscapulars form an irregular bar across the shoulders. The scapulars and tertiaries are sparsely spotted with white, most prominent on the right side. The sides of breast are streaked as usual, although of a rusty color, rather obsolete as they approach the chin which is pure white. The throat and breast are ochroleucous. Otherwise the plumage is natural. The upper and lower mandibles, legs and feet, are deep yellow. The white feathers are immaculate from the quills out, none being edged or spotted with the natural colors.—J. HARRIS REED, *Ridley Park, Penn.*

Cistothorus palustris marianæ on the Coast of Georgia.—Of seven Long-billed Marsh Wrens taken by Mr. W. W. Worthington at various dates during November and December, 1887, and January, 1888, on Sapelo Island, Georgia, six prove to belong to the lately described *C. p. marianæ* Scott. The seventh bird is a typical *palustris.*—WILLIAM BREWSTER, *Cambridge, Mass.*

Capture of the Brown-headed Nuthatch near Elmira, N. Y.— While making some observations on the migration of birds, this spring, for the Division of Economic Ornithology of the U. S. Department of Agriculture, I had the good fortune to procure a specimen of *Sitta pusilla*, Brown-headed Nuthatch. I can find no record of its being taken in New York State before, and Dr. A. K. Fisher, of the Department, to whom I sent the bird for examination, says he can find no record of its being taken in our State. The bird is a fine adult male, and was taken at the Mountain House near this city, May 24, 1888.—EDWARD SWIFT, *Elmira, N. Y.*

Impeded Migration and Destruction of Birds at Chicago. — Usually at this time of year (May 20) the small land birds have passed us on their

northward migration, but this spring the weather has been so unfavorable that they have been much delayed, the Warblers, especially, and have suffered great loss of life.

While it is usual to see many of these birds passing from tree to tree in the city, this spring on May 12 they were observed in great numbers scattered over the ground in open lots, and on the larger prairies within the city. Many were likewise noticed in the thronged thoroughfares in the business part of the town where some were run down by passing vehicles, and others met their death under the feet of pedestrians. They would permit a close approach, but when almost stepped upon would make a spasmodic effort to mount into the air, only to find themselves dropping back to the ground again, helpless, weak, and benumbed by the cold. This strange effect of the weather on the birds extended over many miles of country and across Lake Michigan to the east. The shores between Lake Forest, Evanston, and Chicago were bestrewn with lifeless birds which had been washed up by the waves.

Up to May 11 the weather, as recorded in my diary, was very changeable with spells of rain and cold. On that day it became bright, the mean temperature of the twenty-four hours being about 70° F., wind N. W., with a velocity of about sixteen miles an hour. This favorable day brought with it the usual influx of migrants from the south. They were especially numerous, flying all day, and at night the notes of Warblers were plainly heard on the streets below. But May 12 a decided fall in the temperature (the mean was 42° F.) with alternate cloudiness and sunshine, and a wind blowing about twenty-four miles an hour caught the birds en route and checked their further efforts to proceed north. On this day a few minutes' observation on the ground in the nearest vacant lot or street would reveal Black-and-yellow, Parula, Blackburnian, Chestnut-sided, Yellow-rumped, Bay-breasted, and Black-throated Blue Warblers, with an occasional male and female of the American Redstart, and to make the sight more pleasing the gorgeously colored male of the Scarlet Tanager. Not satisfied with such observations, on the next day, May 13, with the thermometer ranging between 34-45° F., I made a trip of a few hours with Mr. H. K. Coale to the south of the city where the houses are not built so closely, and found the birds similarly distributed.

With the exception of the White-bellied Swallow, which was seen flying South in small flocks, and the Black-and-white Creeper which was noticed engaged in its usual mission of climbing up the trunks of trees, the following birds were all noticed on the ground along our line of travel:

Tyrannus tyrannus.
Dendroica maculosa.
Setophaga ruticilla.
Sylvania pusilla.
Dendroica virens.
Dendroica æstiva.
Dendroica palmarum.
Dendroica pensylvanica.
Dendroica castanea.
Dendroica coronata.
Melanerpes erythrocephalus.
Regulus satrapa.
Sialia sialis.
Actitis macularia.

Troglodytes aëdon.	Zonotrichia albicollis.
Empidonax minimus.	Zonotrichia leucophrys.
Galeoscoptes carolinensis.	Seiurus aurocapillus.
Merula migratoria.	Vireo olivaceus.
Turdus ustulatus swainsonii.	Seiurus noveboracensis.
Geothlypis trichas.	Tachycineta bicolor.
Geothlypis philadelphia (♀).	Anthus ludovicianus.
Harporhynchus rufus.	Mniotilta varia.

It is hardly necessary to state that many of the above species are commonly found on the ground, but all of these birds were profoundly affected by the weather, allowing an approach which would be next to impossible under ordinary conditions. The Warblers could easily have been taken in a small hand net.—JOSEPH L. HANCOCK, *Chicago, Illinois.*

Reason or Instinct?—I made some observations last summer on the habits of the Blue Jay (*Cyanocitta cristata*) which, if not showing reason, certainly show a degree of sympathy and kindness worthy of imitation by animals of a higher order. Last August (1887) on an old farm in Jefferson County, Wisconsin, my attention was attracted by the notes of a Blue Jay, not the ordinary cry, which could be heard at almost any time, as they are very numerous there, but a series of regular calls followed by answers from a neighboring tree. There was something so peculiarly suggestive of a communication of thought about the sound, that I went to the place, and saw an old Blue Jay perched on a fence some distance from a tree where there were several others.

On my nearing the bird, the calls from the tree became more frequent and loud, changing from a low, pleasant, communicative tone to a shrill alarm which became more frequent and intense as I approached. Thinking that he must be injured in some way, I went cautiously up to him when I found that he was at least partially blind. The eyes were blurred and dim, and the lids nearly closed. I had little difficulty in catching him and found him to be an old and helpless creature with scarcely a vestige of his former beauty. The beautiful blue feathers were much faded, in fact, the general appearance of the bird was so different as to be apparent at a glance. The claws were very much worn, the bill dulled, and the primaries and tail-feathers ragged. Every feature suggested old age and feebleness. Yet he was cared for and watched as tenderly as was ever a young bird in the nest. No sooner had I caught him than there were at least a dozen Jays close at hand, whose sympathy and interest were manifested as plainly as could be without words. After a thorough examination, I liberated him, when he flew in the direction of the sound of the others but did not succeed in alighting among the smaller branches of the tree and finally settled on a large limb near the ground. I saw him every day after that (from August 10 to August 17), and never did his companions desert him; some one of them being always near and warning him of approaching danger; whereupon he would fly in the direction indicated by the

sound of their voices. They guided him regularly to a spring near by where I saw him bathe daily, always, however, with some of his companions close by. They not only watched and guided him but they fed him. I had noticed some days previously some Jays carrying food, and thought it strange at that season, as there were no young then to feed, but found afterwards, to my surprise and pleasure, that the poor old blind bird was being fed by those whom he could no longer see.

About a week after first noticing this bird I was compelled on account of sickness in the family to relinquish my observations. There is no doubt whatever that the bird was an old one. The young of the year are easily recognized, not alone by their plumage but by their peculiar teasing, whining notes, unmistakable to anyone familiar with the species.—FRITHOF KUMLIEN, *Milwaukee, Wis.*

[My attention has just been called by my friend Prof. G. W. Peckham to some notes in Darwin's 'Descent of Man,' 1875, pp. 102, 103. The existence of these observations was entirely unknown to my brother (the writer of the above, now recently deceased) or to me at the time his notes were made. I quote from Darwin, p. 102: "Capt. Stansbury found on a salt lake in Utah an old and completely blind pelican, which was very fat, and must have been well fed for a long time by his companions."* Also foot-note on same page: "Capt. Stansbury also gives an interesting account of the manner in which a very young pelican, carried away by a strong stream, was guided and encouraged in its attempts to reach the shore by half a dozen birds." Darwin adds: "Mr. Blyth, as he informs me, saw Indian crows feeding two or three of their companions which were blind."—LUDWIG KUMLIEN, *Milwaukee, Wis.*]

Notes on the Nomenclature of the Muscles of Volation in Birds' Wings.—Mr. Allen's interesting paper† calls up some points regarding the names of the 18 muscles of the antebrachium and manus of the bird. It may be safely assumed that these represent the usual or normal musculation of the parts, though I should be far from presuming that no additional ones, or no different specializations of these, occur in the class Aves. They have been named from time to time, by different persons, upon no system whatever, like most other anatomical structures. It may not be easy to refer the highly specialized musculation of the wing in detail to any system based upon the state of the parts in *Homo sapiens*, but I am able to indicate some of the homologies concerned with the muscles of the human forearm and hand. These I will note, according to the system of neuromyology of Coues and Shute.‡ I take them up in the order in which they are presented by Mr. Allen.

1. 'Flexor carpi ulnaris.' A muscle which has "its origin at the internal condyle of the humerus, and its insertion on the ulna at the wrist" is

* See H. Stansbury, 'Exploration and Survey of the Valley of the Great Salt Lake of Utah, &c.' Phila., 1852, p. 193.—ED.

† See this number of The Auk, p. 418.

‡ N. Y. Medical Record, XXXII, 1887, pp 93-98, 122-126.

certainly not the one so named in human anatomy, which passes from the entocondyle to the carpal sesamoid (pisiform) and so on to the fifth metacarpal. But I think there has been a slip here, the muscle in question really going to the manus for insertion. If so, it is correctly named and identified as the *flexor (meta-)carpi ulnaris* (see 'Key,' fig. 89, no. 36), or simply *flexor ulnaris* of C. and S.

2. 'Musculus ulni-metacarpalis ventralis.'

3. 'Musculus ulni-metacarpalis dorsalis.'

These two muscles I cannot at present writing bring into satisfactory positions in my system. They both appear to belong to the *flexor* set; but as there is neither flexion nor extension in a bird's wrist-joint (motions of adduction and abduction being substituted), one cannot proceed too carefully in identifying the muscles by their action. I see nothing ulno-metacarpal in man to which to refer these muscles. They may turn out to belong to two different groups, despite their concurrent action, and I do not venture to rename them at present.

4. 'Extensor metacarpi radialis.' This appears to correspond to *both* the radial wrist-extensors of anthropotomy, the 'longior' and 'brevior,' and the supinator longus may also be in question here. It is the muscle called (in the 'Key,' fig. 89, no. 32), after Carus, *extensor metacarpi longus*.

5. 'Extensor metacarpi ulnaris.' No doubt the muscle so called in man, and that called *extensor metacarpi brevis* in the Carus figure, 'Key,' No. 33.

6, 7. 'Flexor digitorum sublimis' and 'profundus.' These correspond to the muscles of the same name in man, also called *flexor perforatus* and *perforans* respectively.

8. 'Extensor digitorum communis.' This is said, by a slip, to originate on the 'head' of the humerus, *condyle* being obviously meant. It is the muscle of the same name in man. It appears to be wrongly named in the Key, "34*a* flexor digitorum sublimis," after Carus.

9. 'Extensor pollicis longus.' This may or may not correspond to one, or to two, or to all three of the thumb-extensors of man. That depends, first, upon whether the so-called thumb of a bird's hand be the first or the second digit, and next, upon how many of the human muscles are represented in or by the single one of the bird. This thumb muscle I do not recognize in the figure in the 'Key.'

10. 'Extensor indicis longus.' The final determination of this muscle depends upon the same considerations that affect the recognition of No. 9. In the 'Key' figure, it appears to be that one called "34*b* flexor* digitorum profundus."

11. 'Musculus interosseus dorsalis.' This is one of the muscles called *dorsossei* by C. and S. As it appears to be the only metacarpal *dorsosseus*,

*As long ago as 1871 I had an idea that the 'flexors' and 'extensors' of the forearm required to be revised in name to bring them into correspondence with their apparent representatives in the leg, and I used frequently to exploit the notion. This accounts for the use of 'flexor' in the cases of numbers 8 and 10.

it may be conveniently and appropriately called by this shorter name, without prejudice to the question, which of the four human dorsossei it represents—apparently the *tertius* or *quartus*.

12. 'Abductor indicis.' A dorsosseus apparently *secundus* or *tertius*.

13, 14. 'Flexor' and 'adductor pollicis. Two small thumb muscles situated upon the back of the manus, of uncertain systematic position. One of them may be really a dorsosseus; but that depends, as before, upon to which digit of the pentadactyl hand the thumb of a bird's tridactyl hand corresponds. One of these muscles is displayed in my Carus figure, '34c flexor brevis pollicis.'

15. 'Musculus interosseus palmaris.' This muscle, which has been specially drawn upon in the controversy elsewhere alluded to,* is situate on the 'internal' (that is, the palmar) aspect of the manus; it is therefore one of the three *palmossei* of C. & S., but which one, remains to be decided.

16, 17. 'Extensor' and 'adductor pollicis brevis.' Two 'pollical' muscles, to which the same remarks apply as to Nos. 13 and 14. It would seem that a bird's thumb, aside from its 'long' muscle which comes from the forearm, is exclusively actuated by four 'short' muscles, which flex, extend, abduct, and adduct it. Such regular musculation should not be difficult to homologize, but we must first settle the status of the digit itself. If a bird's hand be no exception to the probably invariable rule in mammals, that, when digits are reduced in number from five, the reduction is from *each side* alternately, so that digits I and V are the missing ones in a tridigitate member, then obviously, the three digits of a bird are II, III and IV corresponding to our index, middle and ring fingers. But if, in a bird, two digits have gone from the ulnar side, then the bird's three digits are I, II, III, corresponding to our thumb, index and middle fingers. I think that very likely a careful dissection of the two main *nervous* trunks of the forearm would throw a light upon the question which perhaps the examination of the embryonic carpus and metacarpus has not hitherto afforded.

18. 'Flexor digiti tertii.' Apparently one of the hypothenar subgroup of C. and S., but possibly a palmosseus: its identification depends upon that of the digit in question.—ELLIOTT COUES, *Washington, D. C.*

*This number of The Auk, p. 418.

CORRESPONDENCE.

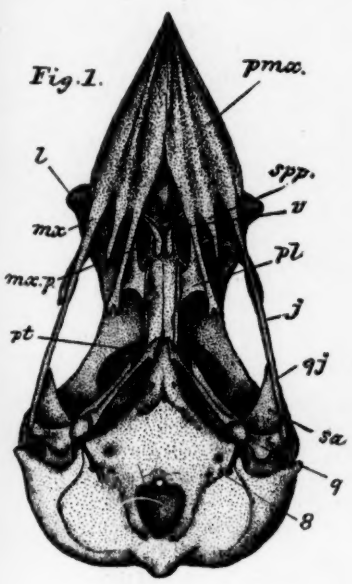
[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

The Osteology of Habia melanocephala, with Comparative Notes upon the Skeletons of certain other Conirostral Birds and of Tanagers.

To the Editors of the Auk:—

Dear Sirs:—To none others better than yourselves is the fact well known, that whosoever has undertaken to compare the skulls of several of the more nearly allied genera of our fringilline birds, with the view of discovering distinctive characters among them, how next to hopeless that person has found such a task to be. Among a large series of skeletons before me I find such species represented as *Zonotrichia coronata*, *Chondestes grammacus*, *Habia melanocephala*, *Pipilo m. megalonyx*, *Pipilo chlorurus*, *Piranga ludoviciana*, *Calamospiza melanocorys*, *Icteria v. longicauda*, *Calcarius lapponicus*, besides a host of other Passeres, including the majority of the Crows, Jays, Orioles and their allies, Sparrows, Finches, and others, and it is truly wonderful to note the manner in which the cranial characters, indeed the skull as a whole, in these numerous genera, morphologically shades from one series of the more intimately related forms into the group next most nearly allied, and so on, along different lines, diverging as they do, from any well-defined genus we may elect as our primary one for initial comparison. True as this is, however, I find it none the less true that if we critically compare the skeleton of some Finch, for instance, at one extremity of such a series, with the skeleton of another conirostral species chosen from the other, important differential characters may not infrequently be detected, which characters are constant for the species, and of great value to the taxonomist of this, in many cases, puzzling group of birds. It is my object in the present connection to point out some of the more available characters, such as I refer to, and which I have met with in my osteological studies of this extensive group. In *Habia melanocephala* the skull as a whole bears a very striking, though superficial, resemblance to that part of the skeleton in certain Parrots, and when compared with the skull in such a form as *Pipilo m. megalonyx*, for example (Figs. 1 and 2), presents us with some excellent differential characters. Chief among them we find in the Grosbeak to which I have invited attention that, in addition to its far more massive osseous superior mandible, it possesses a complete bony *septum nasi;* the infero-external angle of a *pars plana* meets the jugal bar beneath it, and is produced backwards to no inconsiderable extent; the tympanic bullæ are inconspicuous; the frontal region between the margins of the orbits on the superior aspect of the skull is unusually broad; the antero-external angles of the vomer are commonly produced, and fuse

with the maxillary and premaxillary on either side (there may be exceptions to this, but it never happens in *Pipilo*); the postero-external angle of either palatine is distinctly bifurcated; the palatine, on either side, develops a ***secondary palatine*** process (*sp.p.*, Fig. 1), extending backwards from a point to the outer side of where the anterior palatine limb fuses with the premaxillary;* and finally, the interorbital septum is performed entirely in bone, though the foramina for the exit of the first pair from the cranium merge, and the vacuity is of some considerable size.



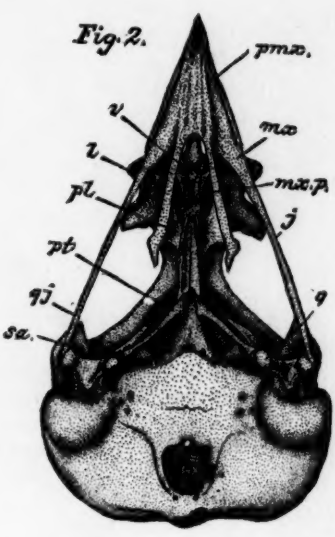


Fig. 1. Basal view of the skull of *Habia melanocephala*, adult ♂, × 2, and mandible removed.

Fig. 2. Basal view of the skull of *Piplo m. megalonyx*, adult ♂, × 2, and mandible removed. *pmx*, premaxillary; *l*, lacrymal; *mx*, maxillary; *mx. p*, maxillo-palatine; *pl*, pterygoid; *spp*, secondary palatine process; *v*, vomer; *pl*, palatine; *j*, jugal; *sa*, squamosal process; *q*, quadrate; *8*, foramen for glossopharangeal and vagus nerves; *qj*, quadrato-jugal.

*These processes are well shown in Figure 1, and as I have never met with a former description, I have designated them by the above-given name. Not having examined the young of *H. melanocephala*, it is just possible that these interesting projections may be developed on the part of the premaxillary, but the adult skull does not seem to so indicate. The name I have bestowed upon them will answer very well in either event. They are absent in such a form as *Coccothraustes vulgaris* (See Huxley, P.Z.S., 1867, p. 452, fig. 33), and very likely in our *C. vespertina*, though I have not examined the skeleton of that species.

Now in the skull of the *Pipilo*, which I have chosen for comparison, each and all of these characters are just the reverse. There we find not even a vestige of an osseous nasal septum; nor does the *pars plana* so much as reach the jugal bar; nor are the postero-external angles of the palatines bifurcated, but are on the other hand distinctly truncated from without inwards and backwards; while in addition we find in this species very conspicuous tympanic bullæ, a large vacuity in the interorbital septum, a narrow frontal region, and the secondary palatine processes absent (Fig. 2). Both of these birds possess an elliptical vacuity in the ramus of the mandible, on either side, but in *Habia* this bone is far stronger with much deeper sides than we find it in *Pipilo*, and withal is not a little different in shape. In both of these Finches, too, the squamosal processes are very large (*sa*); while I may add that thus far it is only in *Habia melanocephala*, of all our Conirostres that I have detected the secondary palatine processes. The characters of the skull in *Pipilo m. megalonyx* are almost exactly repeated in the skulls of *Pipilo chlorurus* and *Zonotrichia coronata*, though the skull in the first-named species is considerably larger, and has the tympanic bullæ markedly more prominent; while in the case of the two species last named, both in point of size and in all other details, it lies next to an impossibility to distinguish them. All North American Fringillidæ have an extraordinarily minute occipital condyle, as compared with the size of the skull (see figs. 1 and 2).

By the easiest sort of intergradation the skull of *Zonotrichia* shades into the skull of *Chondestes*, and an attempt to define the differences between them would simply result in an enumeration of insignificant details. As we pass to such a skull, however, as we find in *Calcarius lapponicus*, a specimen of which species I collected in Wyoming in 1880, and now have its skeleton before me, a few of the modifications in characters so faintly forecast in *Zonotrichia*, are here completed and stereotyped. The delicate, mesial ends of the maxillo-palatines are now enlarged and paddle-shaped; the antero-external angles of the vomer are curled upwards and inwards; the palatines are well separated from each other the *entire* length of the rostrum of the sphenoid, and their postero-external angles each terminate in a needle-like point; and lastly, the tympanic bullæ cease to be a striking feature of the skull. And for conirostral birds, the gap indicated by the characters of this part of the skeleton, between such a type as *Calcarius* and *Habia*, is now of no inconsiderable extent; I was almost about to say of family distinction.

To see the typified fringilline skull, however, we can turn to no better example than exists in *Calamospiza melanocorys*,—a true Bunting, if there ever was one. Compact to a fault, and with all the bones stouter and thicker than in any of the foregoing species, the skull of *Calamospiza* is easily distinguished from the skull either of *Pipilo* or of any of the true Sparrows. In it the external nasal aperture upon either side, is circular rather than elliptical, as it is in the Towhees and *Zonotrichia*. Compared with its allies its characters are of excellent generic rank, if we may be

permitted to judge from the skull alone; there is nothing especial though in this part of the skeleton in *Calamospiza* that at all reminds one of the skull in *Habia melanocephala*.

Elsewhere I have shown that *Molothrus ater* was by its skeleton a Finch, though the most icterine of all our Fringillidæ, with the exception perhaps of *Dolichonyx*, a form which I have not yet osteologically examined, but judging from what I found in *Molothrus*, I am strongly inclined to believe that it too belongs on the fringilline side of the line. Barring the broad frontal region in the first-named species, its skull approaches in its general *facies* the skull in the Towhees and their more immediate allies, and from them it shades beautifully into the Icteridæ.

Passing for a moment to the skull in another family, the Tanagridæ, we meet with the extreme modification of the conirostral type in another direction, so profound a change, indeed, that I am not familiar with the skull of any true fringilline, that the skull of such a species, for instance, as *Piranga ludoviciana* could be confused with, or would in its entirety resemble. In the Tanager to which I refer the nostrils are large and elliptical; there is a total absence of an osseous nasal septum; as compared with an average Finch the skull is elongated, and the brain-case relatively smaller; its palatines are of the most marvelously delicate construction, and their postero-external angles drawn out into long hair-like spiculæ; the pterygoids are markedly slender; and finally, the presence of *secondary palatine processes* plainly points to its affinity with such a Grosbeak as *Habia melanocephala* among the Fringillidæ. So far as the skull goes, the Tanagers are remotely linked with the Mniotiltidæ through *Icteria*, and in *Icteria virens longicauda* the skull presents some few striking differences from that part of the skeleton in *Piranga ludoviciana*, for not only does it seem to exceed it in frailty and delicacy of construction with respect to the bones composing it, but in the skull of the Chat to which I refer we find that the secondary palatine processes are absent; the postero-external angles of the palatines are produced as blunt apophyses, and the anterior projecting limbs of these bones are conspicuously slender and widely separated; the ramal vacuity of the mandible is large, elongated, and elliptical in outline, while the sides of this bone are shallow, and its entire make impresses us with its weakness. Omitting, however, the mandible, the palatines, the acuteness of the superior osseous mandible, we should have remaining in the rest of the skull of *Icteria* a structure that without the slightest violence could be appropriated by any true Pirangine avian type.

Turning again to the skeleton of *Habia melanocephala*, we find that it possesses nineteen vertebræ between the cranium and the pelvis, all freely movable upon each other; of these the ultimate *five* connect with the sternum through costal ribs, while just anterior to them are two vertebræ which support free ribs (the anterior pair being very minute), and finally, there is a pair of sacral ribs, the hæmapophyses to which fail to connect with the sternum. This arrangement of the ribs and vertebræ also obtains in *Pipilo*, *Zonotrichia*, *Icteria*, and other forms, and is undoubtedly the

typical plan for the vast majority of average Passeres. A difference is met with though in the tail vertebræ, for in the specimens at my hand *Habia* possesses *seven* free caudals and the pygostyle, while *Pipilo* has but *six* and the terminal piece. In *Piranga*, too, we find but six caudal vertebræ, and the pygostyle, while this also seems to be the number in *Icteria*, and in a former memoir I recorded the same in *Molothrus ater*.

With barely an apology of a structural difference between them upon which to base a substantial distinction, the *pelvis* in *Habia* sees almost its exact counterpart in the corresponding bone in the skeleton of *Pipilo m. megalonyx*. Both are typically passerine, and so well known is the passerine pelvis in such genera as these, that to enter upon its description is by no means necessary. *Pipilo chlorurus* has a pelvis which differs from the pelvis in *P. m. megalonyx*, as well as from the pelvis in *Zonotrichia coronata*, in that in it is the fourth sacral vertebra, counting from the last forward, that extends its diapophysial braces opposite the acetabula, instead of the third as in the excepted species, and a difference of arrangement also exists in that an additional vertebra, anteriorly, extends its lateral processes to meet the ilium upon either side, there being three each in *P. m. megalonyx* and *Zonotrichia*, and four in *P. chlorurus*. I should like to examine more material before pronouncing upon the significance of this departure, and more especially skeletons of *Embernagra rufivirgata*. *Piranga ludoviciana* and *Icteria* have pelves almost identically alike, it being in each case the fifth from the last sacral vertebra that throws out the long strut-like apophysial arms to act as braces opposite the acetabula. *Calamospiza* possesses the same arrangement of the vertebræ in its pelvis, but here the bone is apparently not as wide for its length as it is in *Habia*, though no satisfactory differences exist between several of these pelves, upon which to base strong family, or even generic lines.

Few differences again are to be found in the *sternum* of the species we have under consideration; the common pattern of the bone as seen among the smaller average passerine birds of this country is well shown in my figures of it in *Otocoris* (Osteology of *E. alpestris*, figs. 22, 24, 27, and 38); in *Habia* the anterior carinal angle is pointed and the keel itself is but of moderate depth, while among the *Pipilos*, and in *Zonotrichia*, the anterior carinal angle is rounded, and the keel much shallower, markedly so in the ground-loving species of the first-named genus. I am strongly inclined, however, to attribute this last character to physiological adaptation rather than to an evidence of affinity. These Towhees spend much of their time hopping about beneath the shrubbery of their places of resort, and by no means use their wings in flight so often as other fringilline species, and consequently develop less their pectoral muscles, which are attached, in part, as we know, to the sternal carina. True Tanagers, as I have elsewhere pointed out, have an osseous bridge extending across the top of the manubrium to the anterior margin of the body of the sternum, and if it be constant, it is an excellent character for this family. It is absent in such a genus as *Icteria*, and in all the Fringillidæ now at my hand.

My plate o the osteology of *Otocoris*, cited above also presents good figures of the bones of the *shoulder girdle*, and when we come to compare them among these smaller passerine types it is truly wonderful how well they agree with each other. We have examined them in many species representing a host of different genera, and yet who has been enabled to base a single, *constant*, differential character upon the elements of this arch? Slenderer here, a little shorter there, a somewhat longer and more quadrilateral hypocleidium in this form than in that, still in all essential particulars, coracoid, scapular, and *os furcula* in *Piranga* are the same as we find them in *Habia*, or in *Pipilo*, or in *Molothrus*, *Progne*, *Lanius* (I have elsewhere figured it for this genus), *Merula*, in short a perfect phalanx of other forms among our smaller Passeres.

What I have just said in reference to the shoulder girdle applies with equal force and truth to the skeleton of the *pectoral* and *pelvic limbs* of these birds, which parts have been likewise figured in my memoirs upon *Otocoris* and *Lanius*. One may go carefully over, with lens in hand, for hours, studying the limb bones of these particular genera of passerine birds, and yet signally fail to select a reliable set of characters in any genus that can be depended upon to distinguish it from another. Differences, of course, yes, constant differences, *do* exist, but they are not of the kind which can be powerfully brought into play by the taxonomist, who in searching for differential skeletal characters in these several groups must rely almost entirely upon what he finds in the skull, the vertebral column, and occasionally in the pelvis and sternum. Still, minor differences, which are sometimes presented, may, by the careful classifier, be mentally added to the more salient distinguishing features, and thus be allowed their weight in his final decisions, where they might not be of sufficient importance to warrant a published description or special record. This has been the writer's habit when dealing with such characters. To the practised eye, and an unbiased and mature judgment, the general *facies* presented by the skeleton of the wing or leg of a small passerine bird will sometimes assist, and properly so, in one's forming a final opinion, when these facts are being compared with similar parts in a different species, and where affinities are being searched after.

In conclusion, I would remark that having carefully gone over and thoroughly studied and weighed the characters of the species now under consideration, and many others not enumerated above, I am prepared to say that, in so far as the skeletons seem to indicate, the following deductions can be drawn. First, *Habia melanocephala* possesses characters in its skeleton not shared by any other fringilline bird known to me, outside the Grosbeaks, which characters are of family rather than generic rank. Essentially conirostral, and a seed-eater with a big beak, but for all that with an *ossified nasal septum*, with *secondary palatine processes*, and a *vomer generally fused with the surrounding bones, anteriorly*,—all of which characters are disreputably unfinch-like, and entitle their owner fully as much to family distinction as any set of skeletal characters we might array chosen from *Sturnus* does that form; and how about *Molothrus* and *Dolichonyx*?

As for *Pipilo chlorurus*, its skeleton is quite the counterpart of the skeleton in *Zonotrichia coronata*, and is readily distinguished from the skeleton of *Pipilo m. megalonyx*, which is by no means an easy task in the case of the first-mentioned species. I believe, from my studies of the anatomy of this form, that it has more Zonotrichine stock in its economy than it has Towhee kinship to boast of, and it sees its nearest affinity in the family among the 'Crown Sparrows.'

Osteologically, *Calcarius*, *Spinus*, and *Acanthis* are more or less closely affined genera, nor does the genus *Plectrophenax* stand between them as at present represented in our Check-List. *Calamospiza*, as I have already remarked, is a true 'Bunting,' but not especially related to the Grosbeaks by any skeletal affinity, and it characterizes a strong genus with well-defined osteological features. Judging from such a form as *Piranga ludoviciana*, I would say that osteologically the Tanagers form a good family, and through certain Grosbeaks are linked with the Fringillidæ, more, though only a little more, remotely through *Icteria* with the 'Wood-Warblers.'

These groups and their kin will bear far more extended anatomical study, which some day I hope to bestow upon them. In closing, it gives me pleasure to thank Mr. C. A. Allen, of Nicasio, California, for his kindness in collecting and sending me the specimen of *Zonotrichia coronata*; it was received in April, 1881, seven years ago.

Very respectfully yours,

R. W. Shufeldt.

Fort Wingate, New Mexico, July 14, 1888.

How far West has Anas obscura been found?

To the Editors of The Auk:—

Sirs:—In my Revised Catalogue of the Birds of Kansas I said "*Anas obscura* Gml. Black Duck. Entered in first catalogue as 'migratory; rare'; but since, on comparing the specimens captured in the State, that I have seen, with Eastern ones, they prove to be the 'Florida Duck.' Other writers claim that the birds have been taken in the State, also in Texas, and west to Utah, and I am inclined to think that further investigation will prove it to be the case. With this explanation I let the bird stand as first entered."

I now desire to say that further examination tends to convince me that the birds do not come as far west as this, and leads me to think it probable that all specimens taken west of the Mississippi River, will prove upon comparison to be the Florida Duck. A set of eight eggs collected near Corpus Christi, Texas, May 27, 1882, and reported to me as of this species, are in dimensions altogether too small, viz.,—2.08 × 1.62, 2.12 × 1.62, 2.10 × 1.58, 2.12 × 1.60, 2.12 × 1.59, 2.08 × 1.62, 2.10 × 1.60, 2.08 × 1.59 inches. In color they are cream or pale buff white.

Any information that will aid in determining their western limits will be gratefully received.

N. S. Goss.

Topeka, Kansas.

NOTES AND NEWS.

CHARLES WICKLIFFE BECKHAM was born near Bardstown, Kentucky, August 1, 1856, and died there at his home June 8, 1888. His father was a lawyer and member of the Legislature of Kentucky at the time of his decease, some eight or ten years ago. His mother, who survives him, was a daughter of the late Governor Charles C. Wickliffe, of Kentucky. Mr. Beckham was educated at a private school near Bardstown, and when seventeen years old was for one or two years a student at the University of Virginia. After that he was attached to the Geological Survey of Kentucky under Professor Shaler, for about two years. He then followed Professor Shaler to Harvard University where he spent a year in scientific studies. He was then appointed, by the Hon. J. Proctor Knott, of Kentucky, clerk of the Judiciary Committee of the House of Representatives, at Washington, where he remained for four years. Afterwards he went to Pueblo, Colorado, where for about a year he engaged in mercantile pursuits; thence returned to Washington and became connected with the National Museum. While clerk to the Judiciary Committee of the House of Representatives he studied law, attending for a portion of the term, the Columbia Law School in Washington. About two years before his death he was induced to turn his attention to the practice of law, as a patent solicitor, and entered the office of Mr. Pollock, where he was engaged with great promise of success when his fatal disease began to develop itself.

Mr. Beckham's talent for mathematical and physical science, united to other qualities, formed a rare combination from which his friends argued that he would win success. But Providence decreed otherwise. It was in the effort to throw off disease that he spent a winter in Texas, employing his time making a collection of birds, a fine series of which he presented to the National Museum. Returning from Texas for a few months, he resumed his labors at Washington, but again attacked by illness he went to Louisiana and spent the winter with his uncle, Governor R. C. Wickliffe, near St. Francisville. Growing worse, he returned, with his mother, to Bardstown, where he died, after extreme suffering. "All that friends and relatives and medical skill could do were of no avail. He died without an enemy, and was followed to the grave by the tears and tender regrets of all who had ever known him." During his connection with the Department of Birds of the National Museum, Mr. Beckham proved an intelligent and able assistant, while his gentle, genial, and unassuming manners, and gentlemanly deportment won for him the genuine regard of his associates. Owing to his ill health, he was not able to devote much of his leisure time to the labor of original research in his favorite study, but he managed to write several papers, each of which is a valuable contribution to the subject to which it relates, being characterized by an unusual degree of painstaking care and unbiased judgment; and had he been able to write more would undoubtedly have won for himself a high rank among ornithologists.

A nearly complete list of Mr. Beckham's ornithological papers is subjoined herewith:

Short Notes on the Birds of Bayou Sara, Louisiana. *Bull. Nutt. Orn. Club*, Vol. VII, 1882, pp. 159–165.

The Black-throated Bunting in Florida. *Bull. Nutt. Orn. Club*, Vol. VII, 1882, p. 250.

A List of the Birds of Bardstown, Nelson County, Kentucky. *Journ. Cincinnati Soc. Nat. Hist.*, Vol. VI, pp. 136–147. July, 1883.

List of the Birds of Nelson County [Kentucky]. *Kentucky Geological Survey.* Sept., 1885.

Notes on Some of the Birds of Pueblo, Colorado. *The Auk*, Vol. II, 1885, pp. 139–144.

A White-winged Junco in Maryland. *The Auk*, Vol. II, 1885, p. 306.

Remarks on the Plumage of *Regulus calendula*. *Proc. U. S. Nat. Mus.*, Vol. VIII, No. 40, Dec. 7, 1885, pp. 625–628.

Changes in the Plumage of *Geothlypis trichas*. *The Auk*, Vol. III, 1886, pp. 279–281.

First Plumage of the Summer Tanager. *The Auk*, Vol. III, 1886, p. 487. [Here described for the first time.]

The Red-breasted Nuthatch in Kentucky in Summer. *The Auk*, Vol. III, 1886, p. 489.

Scarcity of Adult Birds in Autumn. *The Auk*, Vol. IV, 1887, pp. 79–80.

Additional Notes on the Birds of Pueblo County, Colorado. *The Auk*, Vol. IV, 1887, pp. 120–125. [The list published in a previous number (Vol. II, pp. 139–144) increased from 91 to 112, and "additional notes" given on 29 species mentioned in the first list.]

Additions to the Avifauna of Bayou Sara, La. *The Auk*, Vol. IV, 1887, pp. 299–306. [Very interesting remarks on the birds of that locality, including 27 additions to an earlier list (*Bull. Nutt. Orn. Club*, Vol. VII, 1882, pp. 159–165.]

Occurrence of the Florida Blue Jay (*Cyanocitta cristata florincola*) in Southwestern Texas. *The Auk*, Vol. V, 1888, p. 112.

A Philadelphia Vireo and a Cobweb. *The Auk*, Vol. V, 1888, p. 115. [The Vireo entangled in and held fast by the cobweb.]—R. R.

PHILIP HENRY GOSSE, F. R. S., well known as an English naturalist of note, died in London, August 27, at the age of seventy-eight years. He spent much of his early life in America, visiting Newfoundland when seventeen years of age, and spending many subsequent years here, in Lower Canada, and the United States, and later in Jamaica. Besides publishing many standard works and papers on British marine zoölogy, he was the author of several works of travel relating to the natural history of the countries he visited, including his 'Canadian Naturalist' (1840), 'Letters from Alabama on Natural History' (1859), and 'A Naturalist's Sojourn in Jamaica' (1851). He was also the author of 'The Birds of Jamaica' (1847), and 'Illustrations of the Birds of Jamaica' (1849), works giving him an established position as an ornithologist, besides various

minor papers on ornithological subjects. He was the father of Edmund W. Gosse, the critic and poet.

THE SIXTH Congress of the American Ornithologists' Union will be held in Washington, D. C., beginning Nov. 13. A circular of information will soon be sent to members by the Secretary, giving information as to where the sessions will be held, etc. The meeting promises to be one of unusual importance and interest.

THE BRITISH MUSEUM has recently made an important addition to its collection of North American birds through its purchase of Mr. H. W. Henshaw's fine series, numbering about 12,000 specimens. The Henshaw collection, having been carefully revised by Mr. Ridgway, thus carrying his identifications, transfers to the British Museum an authoritatively labelled collection of North American birds, which will be of great assistance to our English friends in determining just what American ornithologists mean by the names they give to American birds.

THE REPORT of the U. S. Commissioner of Agriculture for the year 1887, recently issued, contains an interesting report (pp. 399–456) on the work accomplished by the Division of Economic Ornithology and Mammalogy. Besides a general statement of the progress of the work by Dr. C. Hart Merriam, Chief of the Division, the report contains the following special papers: (1) 'Food of Hawks and Owls,' by Dr. A. K. Fisher, Assistant Ornithologist; (2) 'Experiments in Poisoning,' by the same author; (3) 'Some of the Results of a Trip through Minnesota and Dakota,' by Vernon Bailey, Special Field Agent; (4) 'Notes on the Depredations of Blackbirds and Gophers in Iowa and Southern Minnesota,' by Dr. Fisher. Two 'Bulletins' are in press, one on the English Sparrow, and one on Bird Migration in the Mississippi Valley, the latter by Professor W. W. Cooke. The English Sparrow report is based on replies received "from more than 3,000 persons," in answer to circulars and schedules sent out by the Department asking for information. The preparation of this large amount of material for publication has been assigned to Professor W. B. Barrows, Assistant Ornithologist.

DR. M. A. MENZBIER has issued a prospectus of a work on the 'Ornithologie du Turkestan et des pays adjacents,' to be issued in parts, large quarto in size, with colored plates. The work will form six volumes with eighty to ninety plates, and will be based on the collections and notes made by the late Dr. N. A. Sewertzow, during his eight expeditions, under the auspices of the Russian government, during the years 1857 to 1878. The territory explored extends from Mount Tarbogataë on the east to the Volga on the west, and from Western Siberia on the north to the Hindoo-Koosh on the south. The work will be based on ample material and its publication is expected to extend over five or six years. The specimen pages and plates issued with the prospectus indicate care and thoroughness in the preparation of the work, for which the author is eminently qualified. The cost of the complete work will be about $150.

FOREIGN ornithologists are responding liberally to the call for funds for the erection of the proposed monument to Audubon, their gifts being often accompanied by expressions of hearty appreciation of the great naturalist and his work. An eminent German ornithologist writes: "Enclosed in this letter I send you . . . as a small contribution for the monument to Audubon, whose memory is so dear and so much venerated by all who have worked in ornithological science." Another says: "By Imperial post I have the honor to send you . . . . as a small contribution for the Audubon Monument in the hope that even so small a sum will be kindly received as a sign of the high esteem for the great American ornithologist, so much admired in Europe and by all brother ornithologists." If Americans feel the same interest and respect for Audubon they are certainly slow in manifesting it in the same substantial way as foreign ornithologists are doing, as shown by the following list of contributions submitted by the Chairman of the A. O. U. Audubon Committee (Mr. Wm. Dutcher, 51 Liberty St., New York City), as covering the period from June 11 to September 14: O. F., Bremen, $4.71; Dr. A. von Pelzeln. $5; Prof. F. Ferrari-Perez, $10.00; B. H. Dutcher, $1.00; W. Dutcher. $3.00. Total, $133.71.—In the July Auk (p. 336) the credit to "Dr. R. Blasius, $8.00," should stand as follows: Dr. W. Blasius, $3.00; Dr. R. Blasius, $5.00.

BESIDES the continuation of Professor Evermann's paper on the birds of Indiana, and Mr. Scott's article on the birds of Southern Florida, the following papers are in hand awaiting publication in future numbers of 'The Auk': 'Notes on the Habits, Nests, and Eggs of the Subgenus *Passerella*,' by Capt. Charles E. Bendire; 'Notes on the Habits, Nests, and Eggs of *Dendragapus obscurus fuliginosus*', by Capt. Charles E. Bendire; 'On the Summer Birds of Berkshire County, Massachusetts,' by Walter Faxon; 'Oölogical System,' by Josiah Hoopes; 'An Account of the Breeding Habits of *Puffinus auduboni* in the Island of Grenada, West Indies,' by George N. Lawrence; 'Remarks upon Abnormal Coloring of Plumage observed in some species of Birds,' by George N. Lawrence; 'On the Subdivisions of the Family Cypselidæ,' by Frederic A. Lucas; 'Notes on the Birds of White Top Mountain, Virginia,' by William C. Rives, Jr., M. D.; 'Revision of the Clapper Rails,' by George B. Sennett; 'On the Position of the Genus *Chamæa* in the System,' by R. W. Shufeldt; 'The 'Booming' of the Bittern', by Bradford Torrey. Also numerous 'General Notes,' and reviews of ornithological publications.

SUPPLEMENT.

DESCRIPTIONS OF NEW SPECIES AND SUBSPECIES OF BIRDS FROM THE NEOTROPICAL REGION.

BY HANS VON BERLEPSCH.

1. Campylorhynchus zonatus costaricensis, subsp. nov.

C. zonatus SHARPE, Cat. Birds, VI, p. 195, pt. (descr. ♂ ex Parita, Costa Rica).

DIAGN. — C. zonato simillimus sed multo minor, pilei plumis purius griseo terminatis, remigibus angustius et purius albo fasciatis, rectricibus mediis distinctius et regulariter transfasciatis necnon abdomine intensius brunneo-cinnamomeo distinguendus.

Typ. in Mus. H. v. B., No. 2964: Costa Rica (O. Nanne coll.).

	Long. tot.	al.	caud.	rostr. culm.	tars.	
C. zonatus costaricensis	168	70	69½	19½	22½	mm,
C. zonatus, Guatemala (Mus. H. B.), in worn plumage	175	84½	79½	24	26	"
C. zonatus, Honduras (Mus. H. B.), ex Whitely	200	85½	89½	22¾	26½	"
C. zonatus, Mexico (Mus. Kiel)	219	93½	93	26	27½	"

The Costa Rica form of *C. zonatus* may be easily distinguished from the typical bird of Mexico by its much inferior size. In fact it is a dwarf edition of true *zonatus*. On looking over Mr. Sharpe's description of the *C. zonatus* in Cat. Birds Brit. Mus. VI, p. 195, I find that he describes the Costa Rican form of this species. The dimensions noted by him and taken from an adult male collected at Parita, Costa Rica, 5th April, 1867, by J. Carmiol, are just the same as those of my Costa Rican bird.

Regarding coloration, there seems to be very little difference between the new form and true *zonatus*, but it appears that the former has the feathers of the top of the head tipped with a purer and clearer ash (not so brownish as in *zonatus*). The light bands on the quills are narrower and whiter. The light and black bands on the middle tail-feathers are also more regular on the

inner web, where they are quite obsolete in true *zonatus*. The black spots on throat and breast may be larger and more irregular. The vent and under tail-coverts are of a much deeper and browner cinnamon rufous.

2. Certhia mexicana albescens, subsp. nov.

DIAGN.—C. mexicanæ similis sed differt capite supra et dorso striis latioribus et purius albis, nec rufescenti-albis, signatis, corpore subtus purius albo, nec fulvescenti-albo, uropygio intensius castaneo, necnon rostro longiore.

Typ. in Mus. H. v. B., No. 8513, ♂ ad. Ciudad, Durango, N. W. Mexico, 16th October (Alph. Forrer coll.).

Long. tot. 123, al. 65, caud. 62½, culm. 16¼, tars. 14 mm.

The bird just described differs in several important characters from two specimens collected on the tableland or eastern part of Mexico in Mus. H. v. B., and I have little doubt belongs to a new subspecies, which is perhaps more strongly marked than other races of *Certhiæ*. At the first sight the Durango bird differs by its much lighter and less rufescent coloration. The spots on the head above and on the back are much broader and more clearly defined. They appear to be nearly white, while they are light rufescent in true *mexicana*. In the same way the markings on the sides of the head and on the wings are much whiter and less rusty. The under parts, which in true *mexicana* are so much suffused and mixed with fulvous, in the new form appear nearly pure white or grayish white. The rump is of a darker chestnut. The outer margins of the outer webs of the tail-feathers are more grayish or less rufescent. The bill is much longer, measuring on the culmen 16¼ (instead of 14 to 15) mm.

3. Basileuterus godmani, sp. nov.

DIAGN.—B. culicivoro affinis, sed major, alis caudaque multo longioribus, pilei plumis rufo-cinnamomeis olivaceo terminatis (nec sulphureo-flavis tantummodo rufescente variegatis et griseo-olivaceo terminatis) dorso alis caudaque extus magis olivaceo lavatis, sane diversus.

HABITAT: Veragua (specimina duo in Mus. H. v. B. (ex Staudinger & Whitely) asservantus et Costa Rica (fide Baird et Salv. & Godm.).

	Long. tot.	al.	caud.	culm.	tars.
B. culicivorus godmani	120	65½, 64½	58½, 56½	10½	18½ mm.
B. culicivorus, three specimens from Guatemala in Mus. H. v. B.	100-105	53½ to 54½	47 to 48	9½ to 10½	17 to 18 "

Messrs. Salvin & Godman have already remarked the difference in colors between specimens from Veragua and Costa Rica as compared with the northern birds, but they say nothing regarding the great difference in size which I believe is a very important character. They say: "Avis ex Costa Rica et Panama pileo medio paulo magis aurantiaco et dorso olivascentiore forsan distinguenda" (cf. Biolog. Centr. Am. Aves p. 171). In fact, the larger size, combined with the marked difference in colors, induces me to describe the southern bird as a new species, which I have the honor to call after my distinguished friend Mr. F. Du Cane Godman of London.

The differences in colors were first pointed out by the late Prof. Baird, but he regarded them as perhaps seasonal.

4. **Eucometis spodocephala pallida**, subsp. nov.

5. **Eucometis spodocephala stictothorax**, subsp. nov.

6. **Eucometis cristata affinis**, subs. nov.

A careful study of specimens of *Eucometis* from different localities has convinced me that there are several geographical races of these birds, hitherto overlooked, which nevertheless are quite distinguishable as subspecies. Prof. Ridgway having been kind enough to send me for examination four specimens of true *E. spodocephala* Bonap. from Nicaragua, belonging to U. S. Nat. Mus. I am now able to point out more properly the differences of the two new races, which may be described as follows:

Eucometis spodocephala pallida Berl.—E. spodocephalae ex Nicaragua affinis sed minor, rostro alis caudaque multo brevioribus. Pectore et abdomine reliquo clare et pure flavis, pectore vix saturatiore minime aurantio vel ochraceo tincto. Dorso alis caudaque extus clarius et purius olivaceo-viridibus. Gula juguloque clarius albo-griseis.

HABITAT: Yucatan (coll. G. F. Gaumer). Type in Mus. H. v. B.

Eucometis spodocephala stictothorax Berl.—E. ab *E. spodocephala* ex Nicaragua dorso et alis caudaque extus olivaceo-viridibus (nec flavo- vel brunneo-olivaceis), colore gulae cinereo obscuriore magis ad jugulum vel pectus producto, pectore et lateribus sordidius aurantiis, *pectore distincte olivaceo flammulato*, subalaribus cum margine alarum sordidius flavescenti-olivaceis, etiam rostro paullo longiore distinguenda.

HABITAT: Veragua (e Staudinger). Type in Mus. H. v. B.

The type of *E. spodocephala* Bp. having come from Nicaragua

through Delattre, I wanted to see specimens from that very locality and therefore am much obliged to Prof. Ridgway, who sent me for examination all the four skins collected by Nutting at Sucuya, Nicaragua, for U. S. National Museum. All these skins agree very well among themselves and are characterized by the deep orange or ochraceous shade of the yellow on the upper breast and sides of the body (somewhat as in *E. cristata* of Bogota), while the middle of the abdomen is of a purer and clearer yellow. The olive-green of the upper parts presents a somewhat yellowish or brownish shade. The cinereous color of the head has a slight greenish admixture, and the gray of the throat is dark but with a slight yellowish suffusion.

E. spodocephala pallida of Yucatan differs from the birds just described very decidedly in its much smaller size, shorter wings, tail, and bill, the latter being pale at the tip of the under mandible. The colors of the body are also very much lighter. The yellow of the under parts is very clear and quite uniform, perhaps a little darker on the upper breast, but never of an orange or ochraceous shade. The gray of the throat is much paler, more whitish gray, and the olive-green of the upper parts is very much clearer and purer without the yellowish or brownish tint to be seen in true *spodocephala*. The upper part of the head is nearly of the same tint as in true *spodocephala*, but it appears that this color is more restricted on the neck, as well as the gray on the throat below.

E. spodocephala stictothorax, of which I have examined five specimens collected at Chiriqui, Veragua, is of nearly the same size as true *E. spodocephala*. It nevertheless differs by having the upper part of the breast flammulated with olive-green, of which there is no trace in the Nicaragua specimens. The gray of the throat is much darker, without the yellowish suffusion, and is much more extended to cover the whole jugulum. The upper part of the head is perhaps a little darker, and the remaining upper parts are of a dark olive-green without the yellowish or brownish tint of *E. spodocephala*. The under wing-coverts and the bend of the wing are a rather duller greenish yellow. The bill is evidently stronger and longer.

Prof. Ridgway also sent me a skin of *Eucometis* from Belize, Honduras (coll. Blancaneaux) which appears to be somewhat intermediate between true *spodocephala* of Nicaragua and *E. s.*

stictothorax of Veragua. This bird being moulting is perhaps not in very normal plumage, and it will be necessary to examine a larger series from that locality. The specimen is of nearly the same size as the Nicaraguan examples, but the bill appears to be rather slender or more compressed laterally. The breast and the sides of the body are not so deep orange or ochraceous yellow, and in the same way there is hardly an indication of the olivaceous flammulations to be seen in *E. s. stictothorax*. The upper part of the head is still of a purer and darker cinereous than in the latter bird, while the gray of the throat is lighter and not so much extended over the jugulum. The olive-green of the upper parts is just the same as in the Veraguan race, perhaps a shade lighter.

MEASUREMENTS.

		Long. tot.	al.	caud.	culm.	tars.	
1. *E. spodocephala pallida*, Yucatan (Gaumer) Mus. H. v. B.		167	81	71	14½	20¾	mm.
2. *E. spodocephala*, ♂ Sucuya, Nicaragua, Jan'y 26, 1883 (C. Nutting)	U.S.Nat.Mus. 90835	150½	89	77½	14½	21	"
3. *E. spodocephala*, ♂ Sucuya, Nicaragua, Feb'y 10, 1883 (C. Nutting)	90832	160	92½	80	14¾	21½	"
4. *E. spodocephala*, ♀ Sucuya, Nicaragua, Feb'y 10, 1883 (C. Nutting)	90833	145	85½	74½	15¾	21½	"
5. *E. spodocephala*, ♀ Sucuya, Nicaragua, January 10, 1883 (C. Nutting)	90834	154½	85½	75¼	15½	21½	"
6. *E. spodocephala*? Belize, Honduras (coll. Blancaneaux	90488	174½	87	73½	15¾	21½	"
7. *E. spodocephala stictothorax*, Chiriqui, Veragua, Mus. H. v. B.		162	90	(moulting) 78½	18⅕	23	"
8. *E. spodocephala stictothorax*, Chiriqui, Veragua, Mus. H. v. B.		163	89½	79	17	22½	"
9. *E. spodocephala stictothorax*, Chiriqui, Veragua, Mus. H. v. B.		148	85	73½	17	23½	"
10. *E. spodocephala stictothorax*, Chiriqui, Vergua, Mus. H. v. B.		141½	81½	72½	17	22½	"
11. *E. spodocephala stictothorax*, Chiriqui, Veragua, Mus. H. v. B.		136	83½	73½	16	23	"

Eucometis cristata affinis Berl.—Simillima E. cristatae ex Columbia, sed paullo minor, pectore abdomineque pure aureo-flavis nec aurantio- vel ochraceo-flavis. Gula clariore grisea nec ut in E. cristata obscurius flammulata.

HABITAT: Pto. Cabello, Venezuela (Mus. H. v B.).

Long. tot. 150-175, al. 85½-94, caud. 72½-82½, culm. 15¼-16¾, tars 20½-22 mm.

Of this form I have examined no less than eleven specimens, all of them collected in the neighborhood of Pto. Cabello, Venezuela. They agree pretty well among themselves in coloration and in all characters by which they are different from true *cristata* of Bogota, viz.: the paler and purer yellow of the breast and abdomen and the lighter throat, which is not so distinctly flammulated with darker stripes as in the bird of Colombia. The lores and the region round the eye are not so black as in the latter, and the crest seems to be always shorter. It is also a bird of somewhat inferior size.

I got a specimen from Baranquilla on the coast of Colombia which agrees best with a Bogota skin, viz. true *cristata* of Dubus. Nevertheless it has the small dimensions of the Pto. Cabello bird.

7. Icterus gularis yucatanensis, subsp. nov.

DIAGN.—I. gulari Wagl. ex Mexico merid. occ. affinis, sed minor, rostra imprimis breviore. Colore corporis avis adultae aurantiaco intensiore potius rubro-aurantio splendidissimo.

Long. tot. 222-224, al. 107-119, caud. 101-112½, culm. 22½-23½, tars 28-29½ mm.

This I consider to be a strongly marked race of the common *Icterus gularis*, being apparently a representative form of it and confined to the peninsula of Yucatan.

I. gularis has been described by Wagler as a bird of Mexico from a specimen in the Berlin Musuem. Being aware of this fact and having convinced myself that four specimens from Yucatan in my collection agreed in several characters by which again they were different from two skins of *I. gularis* from Guatemala and Tehuantepec, Western Mexico, I forwarded my skins to Prof. Cabanis of Berlin asking him to compare them with Wagler's type of *I. gularis*.

My respected friend, having accomplished my wishes with his usual kindness, replied as follows: "Wagler's type of *I. gularis* agrees perfectly with your skins (from Tehuantepec and Guatemala) both in coloration and size, and is of the same origin (viz. Tehuantepec)."

Some time later I asked Prof. Ridgway what was his opinion

about my proposed Yucatan race of *I. gularis*, and he kindly replied: "There can be no doubt that your proposed separation of the Yucatan bird as a subspecies is justifiable; for all the Yucatan specimens are alike in much smaller measurements, as described in your letter." Prof. Ridgway informed me that the National Museum's series consisted of the following specimens, viz.: from Yucatan, 4 adults; Tehuantepec, 4 adults; Guatemala, 2 adults; Salvador, 1 adult. At the same time he most obligingly sent me for inspection one very pale colored specimen from Yucatan, and a very intensely colored one from San Salvador, the latter approaching my Yucatan specimens in its coloration.

The results of my studies in this connection are that in Yucatan occurs a dwarf race of *I. gularis* Wagl. differing from the typical bird of Mexico, which also inhabits Guatemala and San Salvador, in its much inferior size, and perhaps in getting, when fully adult, a much finer and rather splendid fiery orange tint of the yellow plumage.

Regarding the last named distinction it appears that *I. gularis yucatanensis* differs in the same way from true *gularis* as *I. cucullatus igneus* Ridgw., from the same locality, does from *I. cucullatus* of the tableland of Mexico. It is true that the immature bird from Yucatan is of a pale orange yellow, as is the rule with adults of true *gularis*. Thus I believe the Yucatan bird, sent me by Prof. Ridgway for examination, to be in immature dress. It shows yellowish olive margins to the tips of the black feathers of the upper back, which I regard to be a sign of immaturity, not to be found in the adults of my collection. At the same time it may be admitted that the San Salvador skin belonging to U. S. National Museum shows somewhat of the fiery orange color which is so remarkably shown by the adults of the Yucatan race. Nevertheless this coloration in the Salvador bird is of a less intense and splendid character. Professor Cabanis also tells me that out of two specimens of Oaxaca, Southern Mexico, belonging to the Berlin Musuem, one is in yellow, the other in orange-red dress.

Notwithstanding these facts, for the present I am inclined to think that true *gularis* never attains such a splendid and deep fiery plumage as it is certainly the rule with the Yucatan bird. Regarding the San Salvador bird, Prof. Ridgway suggested to me that it might perhaps constitute a third race, characterized by

combining the large size of "the one form with the intense colors of the other." This should be made out with a larger series of skins, bnt I find that the plumage of the last-named bird is but a little more reddish orange or fiery than in my specimen from Tehuantepec. I nevertheless should remark that it has the bill much more slender and rather more curved than in either of my specimens from Tehuantepec and Guatemala, which possess rather stronger and quite straight bills.

My four skins from Yucatan in general agree very well among themselves regarding colors. One has the rump and the abdomen slightly varied with a paler orange yellow, while another, which from its small measurements I regard to be an adult female, differs from the presumed males by showing a darker and less reddish orange color of the body. and has the orange of the middle back (near the black mantle) soiled with ochraceous brown.

I may add that in the new form the wings, bill, and legs (with the claws also) are invariably shorter, but that the tail is quite of the same length as in true *gularis*. Perhaps the white of the inner webs of the quills is a little purer, and the black of the throat runs rather more to a point on the jugulum instead of being rounded beneath.

MEASUREMENTS.

	Long. tot.	al.	caud.	culm.	tars.	
1. *Icterus gularis*, ad., Tehuantepec, Mus. H. v B. No. 2604.	228	127	108	25¼	29½	mm.
2. *Icterus gularis*, ad. Vera Paz, Guatemala (Sarg. coll.), Mus. H. v. B. No. 4188	232	134	111	27	31	"
3. *Icterus gularis*? ♂ San Salvador (Capt. Dow), U. S. Nat. Mus. No. 29443	238	121½	107	26¼	29½	"
4. *Icterus gularis yucatanensis* (♂) ad. Yucatan (Gaumer), Mus. H. v. B.	232	116	106	22⅞	28½	"
5. *Icterus gularis yucatanensis* (♂) ad. Merida, Yucatan, June, Mus. H. v. B.	244	119	109	23¼	28½	"
6. *Icterus gularis yucatanensis* (♂) ad. Merida, Yucatan, June, Mus. H. v. B.	235	117	112½	23½	28	"
7. *Icterus gularis yucatanensis* (♀) ad. Merida, Yucatan, June, Mus H. v. B.	222	107	101	22½	28½	"
8. *Icterus gularis yucatanensis*, imm. Merida, Dec. 23, '64, A. Schott, U. S. Nat. Mus. No. 36837	228	111½	103	22	28½	"

8. Myiobius ridgwayi, sp. nov.

DIAG.—M. capite supra cum dorso superiore brunneo-olivaceis, captit viridescentiore. Uropygio et corpore subtus unicolore sordide ochraceo-flavis. Remigibus cum alarum tectricibus superioribus brunneo-nigris brunneo-olivaceo marginatis et lavatis. Cauda unicolore nigra. Pilei medii plumis in mare adulto aureo-flavis.

OBS. *M. xanthopygo* (Spix) ex Bahia affinis sed colore uropygii (in M. xanthopygo sulphureo) et colore corporis inferioris ochraceo unicolore (in M. xanthopygo—nisi jugulo lateribusque ochraceo brunneis—pallide sulphureo) necnon colore capitis et dorsi olivaceo brunnescentiore primo visu distinguendus.

HABITAT: Prov. Rio de Janeiro, S. Brazil: Petropolis (♂ ad. in Mus. H. v. B. ex Rey) (♀) "South America" (Rio by make) U. S. Nat. Mus. No. 24005 (Cruise of the Delaware. Dr. G. R. Horner).

♂ ad. Long. tot. 122, al. 61½, caud. 62½, culm. 9½, tars. 17½ mm.

I have long had a *Myiobius* from Petropolis, Prov. Rio (received from Dr. E. Rey of Leipzig), in my collection which I regarded as quite distinct from *M. xanthopygus* Spix, but having seen only one specimen, and being at that time somewhat uncertain about Spix's bird, I was unwilling to describe it as a new species. Now Prof. Ridgway lately sent me for examination another example of the same species which, although the exact locality is not stated, I should think from the make up of the skin is also a Rio skin. It agrees very well with my Petropolis specimen with the exception that it has no yellow on the vertex, from which I believe it to be a female or immature bird. The wing and tail-feathers are moulting, and consequently it presents somewhat smaller dimensions. At the same time I have been able to examine in the Munich Museum the type of *Platyrhynchus xanthopygus* Spix, said to be from Rio de Janeiro*, which I found to be quite identical with Bahia skins in my collection.

Now *M. ridgwayi*, which I have named in compliment to my illustrious friend Prof. Robert Ridgway, differs very decidedly from two specimens in my collection from Bahia, viz., true *xanthopygus* Spix, in the following points of distinction.

In *M. ridgwayi* the rump and all the underparts of the body, including under wing- and tail-coverts, are of a nearly uniform ochraceous yellow, and there is no trace of darker coloring on the jugulum (or upper breast), sides of body, and under tail

* This may be an erroneous locality; there is no locality noted in Spix's work, Vol. II, p. 9.—H. v. B.

coverts. In *M. xanthopygus* the latter parts are decidedly suffused with ochraceous brown, while the throat, the belly, and the rump show a pure and clear *sulphur yellow*. The olive-green of the head above and of the upper back presents more a brownish or ochraceous shade in *M. ridgwayi*, while these parts are of a purer green in *M. xanthopygus*. The tail-feathers in the former are of a much deeper black, while they appear brownish black with greenish margins in the Bahia skins. The bill is not so broad in the new species, and the under mandible is darker, being nearly white with a blackish tip in the other bird. The wings in my Rio bird are a little shorter, the tail much longer, than in the Bahia skins. Some time since when Mr. Sclater wrote his 'Catalogue of the Tyrannidæ of the British Museum,' I communicated my Rio specimen to him, pointing out in what way it differed from *M. xanthopygus* (Spix), but my English friend could not satisfy himself of its distinctness. He even does not admit *M. xanthopygus* as a species, which is different from *M. barbatus* by its brownish jugulum, sides of body, and under tail-coverts, etc. Nevertheless, I am fully satisfied with the validity of all these species, and I trust Prof. Ridgway supports this opinion.

9. Synallaxis coryi, sp. nov.

DIAGN.—S. corpore supra saturate brunneo, pileo obscuriore vel minus rufescente. *Stria superciliari* supra oculos incipiente lata ad nucham ducta cum *capitis* et *colli lateribus* (his sordidius) *rufo-badiis*. Corpore subtus sordide brunneo-griseo, gula abdomineqae pallidioribus fere albo-griseis. Mento rufo tincto. Remigibus earumque tectricibus superioribus rufo-brunneo marginatis. Rectricibus externis—nisi pogonis interno parte basali fusco marginato—fere omnino rufo-brunneis, mediis pogonio interno fusco, externo rufo-brunneo. Tectricibus alarum inferioribus et remigum margine basali intus rufis. Rostro—nisi mandibulae dimidio basali flavo—et pedibus corneis.

Rectricibus omnibus in parte apicali angustatis barbis decompositis fere ut in *S. fuliginosa*, cui affinis videtur haec nova species.

HABITAT: *Merida*, Venezuela, duo specimina in Mus. H. v. B. asservantur.

Long. tot. 166-183, al. 55-58¾, caud. 98-62, culm. 12½-12¾, tars. 22-23 mm.

This new species, which I have named in honor of my respected friend, Mr. Charles B. Cory, of Boston, does not resemble

intimately any of the known species of *Synallaxis*. Mr. Sclater, who has examined one of my specimens, agrees with me that it is quite a new bird. One of my two specimens has longer wings and tail than the other. The larger-sized bird seems to be the younger one, as it shows an unmistakable character of immaturity in its fluffy plumage. The smaller-sized specimen, however, possesses all characters of maturity.

Regarding colors, there is hardly any difference between these specimens, with the exception that the smaller bird presents one feather of orange rufous on the chin, while in the larger bird the whole chin is slightly suffused with rufous. Perhaps when quite adult this species may get an orange rufous chin spot, as in many species of *Synallaxis*.

The nearest ally of *S. coryi* may perhaps be *S. fuliginosa* Lafr. of Colombia, which presents quite the same form and general structure of the tail-feathers, but is quite different in its coloration.

In *S. fuliginosa* both webs of all the tail-feathers are of a uniform dark rufous brown, inclining to chestnut. In *S. coryi* the two or four middle tail-feathers have their inner webs uniform dusky or blackish brown, only the outer webs being rufous brown, as in *S. fuliginosa*.

The outer tail-feathers in the same way show more or less of blackish brown on the inner margins of the basal portion on their inner web, while the outermost are uniform rufous brown, as in the Bogotan species.

The upper parts of the body in *S. coryi* are of a very dark and sombre sepia or bistre brown with a slight admixture of rufous brown. The upper part of the head is a little darker and blacker or less rufescent than the back. In *S. fuliginosa* all the upper parts of the body are clear rufous brown (perhaps burnt umber of Ridgway's nomenclature), the top of the head being still brighter and more rufescent than the back.

The *chief* distinguishing character of *S. coryi* consists in its *cinnamon rufous superciliary* or postocular stripe, which begins just above the eye and runs to the sides of the neck. The sides of the head and neck are also varied with cinnamon-rufous, but a little darker and less vivid than the stripe behind the eye. In *fuliginosa* there is a grayish superciliary stripe, the upper ear-coverts are brown, the under ones dark gray, as well as the remaining portion of the sides of the head and neck.

The under surface of the body in *S. coryi* is much lighter than in *S. fuliginosa*, being whitish on the throat and the middle of the abdomen, and brownish gray on the breast and sides of the body, while in *S. fuliginosa* nearly all the under surface of the body is of a uniform, dark cinereous, and the chin never shows any rufous suffusion, as is the case in *S. coryi*.

The outer aspect of the wing in *S. coryi* is rather darker rufous brown, and the under wing-coverts and inner margins of the quills are a uniform cinnamon rufous, being grayish with a slight admixture of rufous in *S. fuliginosa*.

The bill in *S. coryi* is slightly longer and the base of the under mandible is yellow to a much greater extent.

The wings and the tail are much shorter than in *S. fuliginosa*.

SUPPLEMENTARY REMARKS ON THE GENUS *PSITTACULA* BRISSON.

BY ROBERT RIDGWAY.

IN a collection of birds from Bahia recently received at the National Museum are eight specimens of *Psittacula passerina vivida*, for the first time described in my recently published review of this genus.* There are five adult males and three adult females, and all exhibit the distinctive characters of the new race as compared with the true *P. passerina* (Linn.), from the more northern provinces of Brazil. Some of the males show, more or less strongly, a bluish tinge across the hind-neck, this in one of them intensified just behind and above the auriculars into a rather distinct bluish spot. The fifth specimen lacks the bluish tinge on the hind neck and is somewhat lighter colored throughout, thus approaching true *P. passerina*.

Since the above specimens were received, Dr. Sclater has kindly called my attention to an important paper on species of this genus by Dr. Hartlaub† which I had entirely overlooked in

* A Review of the Genus Psittacula Brisson. Proc. U. S. Nat. Mus. Vol. X, 1887, pp. 529-548.

† On a new Species of Parrot of the Genus *Psittacula*. By Dr. G. Hartlaub, F. M. Z. S. Proc. Zool. Soc. London, 1885, pp. 613-615, pl. 38, figs. 1, 2.

the preparation of my 'Review' — an oversight much to be regretted but unavoidable, since at that time no copy of the volun e containing the paper in question was accessible to me.

The two species particularly treated by Dr. Hartlaub are his new *P. spengeli* (misspelled *spengleri* on the plate), from Baranquilla, Columbia, and *P. cyanochlora* (Natt., MS.), from the Rio Branco (a northern tributary of the Lower Amazon). The former is probably the same as my *P. exquisita*, from Cartagena, and the latter may be the same as my *P. deliciosa*, from Santarem and Diamantina, although there are points in Dr. Hartlaub's descriptions which render the matter uncertain until type-specimens can be actually compared. For example, regarding *P. spengeli* he says that the bill is "much larger," than in *P. cyanopyga*, whereas in the type of *P. exquisita* it is rather smaller than in that species; the inner webs of the primaries are said to be black in *P. spengeli*, whereas in *P. exquisita* they are dull green, but little darker than the outer webs; the upper tail-coverts are said to be turquoise-blue, whereas in *P. exquisita* they are all pure light yellowish green, like the tail.* The habitats of the two birds are so close together, however (both being in the delta of the Magdalena River) that there is very little likelihood of the two birds proving distinct, notwithstanding these apparent differences, which may be found to disappear when specimens are compared.

The bird described by Dr. Hartlaub as *P. cyanochlora* (*ex* Natterer, MS.), seems to be very closely allied to my *P. deliciosa*, and possibly the same; but several discrepancies indicate its probable distinctness, at least as a subspecies. These discrepancies are as follows:

	In *P. cyanochlora*,	In *P. deliciosa*,
Sides of head	dilute yellowish green, like under parts.	vivid Paris-green, like forehead.
Upper tail-coverts	fine emerald green, like rump.	clear yellowish green, like tail.
Size	"altogether a larger bird, with a much smaller beak" (as compared with *P. spengeli*).	slightly smaller, with the bill hardly smaller though somewhat narrower (as compared with type of *P. exquisita*).

* In the rather poor figure (pl. 38, fig. 1), however, they are colored green, while the lower tail-coverts are colored pure yellow in strong contrast!

A specimen mentioned by Dr. Hartlaub under *P. cyanochlora* as a supposed young male of *P. passerina*, from Caracas, is an adult male of *P. guianensis* Swains. This species agrees with *P. cyanochlora* in nearly everything except the coloration of the under wing-coverts, which is like that of *P. spengeli* in the restricted area of dark blue feathers, *P. cyanochlora* (like *P. deliciosa*, if distinct), having not only the entire under wing-coverts (except narrow outer margin) but also the whole of the axillars uniformly of this rich dark blue color. In other words, the adult male of *P. guianensis* combines the bicolored wing-lining of *P. spengeli* with the emerald-green rump of *P. cyanochlora*.

Granting that the nearness of the two localities represented respectively by *P. spengeli* and *P. exquisita* (Baranquilla and Cartagena) preclude the probability of their being separable as races even, but giving due weight to the comparatively wide separation of *P. cyanochlora* and *P. deliciosa* (the broad Amazon river, and more than four hundred miles of territory intervening) together with apparent differences of size and coloration noted above, we would have for the region between the Lower Amazon and the Magdalena delta four definable forms, forming a graded series as follows:

Rump turquoise-blue; under wing-coverts bicolored (greenish turquoise-blue with dark blue spot) . . . . . 1. *P. spengeli* (Magdalena delta).

Rump emerald-green.

Under wing-coverts bicolored (as in *P. spengeli*); sides of head yellowish green . . . . . 2. *P. guianensis* (Venezuela and Guiana).

Under wing-coverts unicolored (wholly rich dark blue).

Sides of head yellowish green as in *P. guianensis*. 3. *P. cyanochlora* (Rio Branco).

Sides of head vivid Paris-green . . . . . 4. *P. deliciosa* (Lower Amazon).

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ERRATA.

Page 299, line 13 from top, for **Metopidius indicus** read **Jacana indica.**
Page 346, lines 7 and 14 from top, for **Mergus** read **Merganser.**

BY-LAWS AND RULES OF THE AMERICAN ORNITHOLOGISTS' UNION.

By-Laws.

Article I. Of Members.

Section 1. The Union shall consist of Active, Associate, Honorary, and Corresponding Members, and Patrons.

Section 2. Active Members shall be residents of the United States or Canada, and shall be limited to fifty in number.

Section 3. Associate Members shall be residents of the United States or Canada, and shall not be limited in number.

Section 4. Honorary Members shall be limited to twenty-five in number. They shall be chosen for their eminence in Ornithology, and may be residents of any country.

Section 5. Corresponding Members shall be limited to one hundred in number, and may be residents of any country.

Article II. Of Officers.

Section 1. The Officers of the Union shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and seven Councillors. These officers shall constitute the Board of Management or Council of the Union, for the transaction of such business as may be assigned to it by the By-Laws or by the Union.

Section 2. The President or, in case of his absence or inability to act, one of the Vice-Presidents shall preside at the meetings of the Union and of the Council, and shall appoint all Committees except such as are otherwise provided for.

Section 3. The Secretary shall keep a record of the meetings of the Union and Council; shall give at least three weeks' notice to Active and Associate Members of the time and place of meetings, shall report to the Council all nominations received by him for membership, and shall send to each Active Member a list of the nominees to Active Membership; shall notify Members elect of their election, and Committees of their appointment; shall acknowledge all donations to the Union, and report

the same at the next Stated Meeting; and he shall have charge of the corporate seal of the Union.

Section 4. The Treasurer shall collect all dues from members, attend to all receipts and disbursements of the Union, and make a report of the same to the Union at each Stated Meeting.

Section 5. Vacancies occurring in any office may be filled by the Council until the next annual election.

Article III. Of Meetings.

Section 1. Stated Meetings of the Union shall be held annually, at such times and places as the Union may determine. Special meetings shall be called by the Council as occasion may require, due notice thereof being given by the Secretary.

Section 2. Ten Active Members shall constitute a quorum for the transaction of business.

Section 3. A majority of the Council shall constitute a quorum for the transaction of business.

Section 4. The scientific meetings of the Union shall be open to the public, unless otherwise ordered by a majority of the Members present.

Section 5. A Stated Meeting of the Council shall immediately precede each Stated Meeting of the Union. Special meetings of the Council may be called by the President and Secretary, or by any four Members of the Council.

Article IV. Of Elections, Resignations, and Expulsions.

Section 1. All elections shall be by ballot. Officers, and Active and Honorary Members, shall be elected individually.

Section 2. All Officers shall be elected annually; the term of office shall begin immediately after the election, and the Officers shall continue in office until their successors are elected.

Section 3. Elections of Officers are to be held as follows: In each case nominations shall be made by means of an informal ballot, the result of which shall be announced by the Secretary; after which the first formal ballot shall be taken.

In the ballot for Vice-Presidents, and Members of the Council, each voter shall write on one ballot as many names as there are Officers to be elected, viz., two on the first ballot for Vice-President, and seven on the first ballot for Members of the Council; and on each subsequent ballot many as names as there are

persons yet to be elected; and those persons who receive a majority of the votes cast shall be declared elected, *provided that the number of persons receiving a majority does not exceed the number of persons to be elected, in which case the vacancies shall be filled by the candidates receiving the highest majorities.*

If in any case the informal ballot result in giving a majority for any of the candidates, it may be declared formal by a majority vote.

Section 4. Nominations to Active Membership shall be made in writing; each nomination shall be signed by three Active Members, and shall be handed to the Secretary at least three months prior to the Annual Meeting at which it is to be voted on. The number of Active Members to be elected shall be first decided by a majority vote of the Active Members present at the Stated Meeting at which the election is to be held and they shall be elected in the following manner: Each member may select from the list to be voted upon, and inscribe on a ballot, names not to exceed in number the vacancies to be filled. Absent members may send ballots for five of the candidates, in order of preference, to the Secretary in a sealed blank envelope inclosed in another, and such envelopes shall be opened only by the tellers. From the names receiving the highest number of votes on this preference ballot, the members present may proceed to elect new members in the following manner: At each ballot each member present may vote for not exceeding the full number of persons to be elected, and the person receiving the highest number of votes shall be declared elected, provided that he receive at least three-fourths of the votes cast.

Section 5. Every person elected to Active Membership shall pay to the Treasurer, within six months from the date of election, an entrance fee of ten dollars, and subscribe to the By-Laws of the Union.

Section 6. The nomination of Honorary and Corresponding Members shall be made by the Council to the Union, and such members shall be elected by ballot, and the affirmative votes of three-fourths of the Active Members present shall be necessary to a choice. Honorary and Corresponding Members shall be enrolled upon signifying acceptance of membership.

Section 7. Associate Members may be nominated to the Union through the Secretary by any Active Member, and the

nominations shall be acted upon by the Union at the next Stated Meeting; such Members may be thereupon elected by ballot; and the affirmative votes of a majority of the Active Members present shall be necessary to a choice.

Section 8. Active Members only shall be entitled to vote and be eligible to office. Honorary, Corresponding, and Associate Members may attend meetings, present papers, and take part in the scientific proceedings of the Union.

Section 9. Every Honorary, Corresponding, and Associate Member-elect shall notify the Secretary of his acceptance of membership within one year from the date of his election; in default of which notification, his name shall not be entered on the roll of members.

Section 10. Resignations shall be addressed to the President and acted on by the Council.

Section 11. Any member may be expelled from the Union on satisfactory evidence that said member is an improper person to be connected with the Union, or has made improper use of his membership; such expulsion shall be by a two-thirds vote of the Active Members present at a Stated Meeting, three months previous notice of such proposed action having been given by the Secretary to all Active Members, and to the member accused.

Article V. Of Fees and Assessments.

Section 1. The entrance fee for Active Members shall be ten dollars, and for Associate Members three dollars. The annual assessment shall be for Active Members five dollars, and for Associate Members three dollars. The entrance fee shall cover the annual dues for the first year of membership, dating from the time of election.

No fee or assessment shall be required of Honorary and Corresponding Members.

Section 2. The annual assessment for the ensuing year shall fall due on the first day of each Stated Meeting.

Section 3. No Active Member, one year in arrears for dues, shall be entitled to vote or take part in the business of any meeting.

Section 4. The name of any member two years in arrears for

dues shall be removed from the roll of membership; provided that two notices of indebtedness shall have been given him by the Treasurer, at intervals of three months; and no such person shall be restored to membership until all arrearages have been paid, or the person has been re-elected.

Section 5. Active and Associate Members not in arrears for dues shall receive the regular serial publication of the Union, entitled 'The Auk,' gratis. All the publications of the Union shall be sent gratis to Honorary Members.

Section 6. On payment of one hundred dollars any Active Member may become a Life Member, exempt from all further fees or assessments, and retaining all the rights and privileges of an Active Member.

Section 7. Any person desirous of furthering the aims of the Union may become a Patron thereof on payment of the sum of five hundred dollars, and his name shall be perpetually inscribed upon the records of the Union.

Article VI. Of Scientific Communications and Publications.

Section 1. The Union may publish, under the direction of the Council, a serial Journal of Ornithology, called 'The Auk,' and such reports, proceedings, memoirs, and other works on Ornithology as the Council may authorize.

Section 2. Communications on Ornithology may be read at the Stated Meetings of the Union, by any member, or for him by any other member, notice of the same having been previously given to the Secretary.

Section 3. Any member may read a paper for a person who is not a member, and shall not be considered responsible for the facts or opinions expressed by the author, but shall be held responsible for the appropriateness of the paper. Persons who are not members may read papers on invitation of the President, and with the approval of the Committee of Arrangements.

Section 4. The Secretary shall receive at any time scientific papers for presentation at the Stated Meetings, and shall report the date of their reception at the next Stated Meeting. But such papers shall date, in the records of the Union, from the date of their presentation to the Union; their order of presentation shall be that in which they were registered, unless changed by the Council.

Article VII. Of the Property of the Union.

Section 1. All investments of funds shall be made by the Treasurer, in the corporate name of the Union, in securities approved by the Council.

Section 2. No contract shall be binding upon the Union which has not been authorized by the Council. No liability exceeding one thousand dollars, nor total debt exceeding two thousand dollars, shall be incurred by the Council without the formal consent of the Union as expressed by a majority vote at a Stated Meeting.

Section 3. Bequests and trusts having for their object the advancement of Ornithology may be accepted and administered by the Union.

Article VIII. Of Additions and Amendments to the By-Laws.

Additions and Amendments to the By-Laws must be in writing, signed by two Active Members, and proposed at a Stated Meeting of the Union, to be acted upon at the next stated Meeting. A two-thirds vote of the Active Members present shall be necessary for adoption.

Rules.

I. In the absence of any Officer at a Stated Meeting a member shall be chosen to perform his duties *pro tempore* by a plurality of *viva voce* votes, upon open nomination.

II. The order of business at Stated Meetings shall be as follows:—

First Days' Session.

1. Chair taken by the President, or, in his absence, by one of the Vice-Presidents.
2. Roll-call of Active Members by the Secretary.
3. Reading and approval of the minutes of the previous meeting.
4. Report of the Secretary.
5. Report of the Treasurer.

6. Report of the Council, including nominations for membership and other business or recommendations.
7. Election of Officers for the ensuing year.
8. Election of Members.
   a. Active.
   b. Honorary.
   c. Corresponding.
   d. Associate.
9. Action on business reported from the Council.
10. Appointment by the President of a Committee of three Active Members, none of whom shall be members of the Council, to audit the accounts of the Treasurer.
11. Appointment by the President of a Committee on Resolutions.
12. Reports of Committees.
13. Miscellaneous business.
14. Presentation and discussion of scientific papers, or remarks.
15. Adjournment.

Second Day's Session.

1. Chair taken by the President, or, in his absence, by one of the Vice-Presidents.
2. Roll-call of Active Members by the Secretary.
3. Reading and approval of minutes of previous day's session.
4. Report of the Auditing Committee.
5. Report from the Council.
6. Action on business from the Council.
7. Reports of Committees.
8. Miscellaneous business.
9. Presentation and discussion of scientific papers, or remarks.
10. Adjournment.

Third Day's Session.

1. Chair taken by the President, or, in his absence, by one of the Vice-Presidents.
2. Roll-call of Active Members by the Secretary.

3. Reading and approval of minutes of previous day's session.

4. Selection of time and place of the next Stated Meeting.

5. Appointment by the President of a Committee, consisting of three Active Members, to co-operate with the President and Secretary as a Committee of Arrangements for the next Stated Meeting.

6. Report from the Council.

7. Action on business reported from the Council.

8. Reports of Committees.

9. Miscellaneous business.

10. Presentation and discussion of scientific papers, or remarks.

11. Reading and correction of the minutes of the day's session.

12. Adjournment.

III. The business portion of each day's session shall be open to members only.

IV. The Rules of Order of the Union shall be those of the United States Senate, unless suspended by unanimous consent.

V. The order of business at any session of the Union may be varied from the above, by a two-thirds vote of the members present.

VI. The claims and qualifications of nominees for membership may be discussed before the Union, but such discussions shall be held as strictly confidential.

VII. The By-Laws and Rules, and list of the Officers and Members of the Union, may be published at such intervals and in such manner as the Council may determine.

VIII. The printing for the Union shall be under the direction of the President and Secretary, and three other Members of the Council, who shall be appointed by the Council, and these five shall constitute a Committee of Publication.

IX. The publication of the Quarterly Journal, 'The Auk,' shall be in charge of the Council, which, at each Stated Meeting of the Union, shall appoint the editorial staff for the ensuing year, and shall authorize the editorial staff to secure a competent publisher, and otherwise provide for the proper publication of the Journal.

X. Nominations for membership must contain the full name, residence, official position if any, and date of nomination of the candidate, and must be signed by the member or members making the nomination. A suitable form of nomination shall be provided by the Secretary.

XI. Any of the above Rules may be amended, suspended, or repealed, on the written motion of two members, signed by them, and presented at a Stated Meeting of the Union, in case the same shall be approved by a two-thirds vote of the members present.

OFFICERS AND COMMITTEES OF THE AMERICAN ORNITHOLOGISTS' UNION. 1887-88.

		Expiration of Term.
ALLEN, J. A.	*President*	November, 1888.
COUES, ELLIOTT, RIDGWAY, ROBERT,	*Vice Presidents*	" 1888.
MERRIAM, C. HART	*Secretary*	" 1888.
DUTCHER, WILLIAM	*Treasurer*	" 1888.

ADDITIONAL MEMBERS OF THE COUNCIL.

BREWSTER, WILLIAM		November, 1888.
CHAMBERLAIN, MONTAGUE		" 1888.
CORY, CHARLES B.		" 1888.
ELLIOT, DANIEL G.		" 1888.
HENSHAW, HENRY W.		" 1888.
LAWRENCE, GEORGE N.		" 1888.
STEJNEGER, LEONHARD		" 1888.

EDITORIAL STAFF OF 'THE AUK.'

ALLEN, J. A.	*Editor*	November, 1888.
BATCHELDER, C. F.	*Associate Editor*	" 1888.

COMMITTEES.

Committee on Publications.

ALLEN, J. A., *Chairman.*
MERRIAM, C. HART, *Secretary.*
BREWSTER, WILLIAM.
COUES, ELLIOTT.
RIDGWAY, ROBERT.

Committee of Arrangements for the Meeting of 1888.

ALLEN, J. A., *Chairman.*
FISHER, A. K.
HENSHAW, H. W.
MERRIAM, C. HART.
STEJNEGER, L.

Committee on the Migration and Geographical Distribution of North American Birds.

MERRIAM, C. HART, *Chairman.*
ALLEN, J. A.
BELDING, L.
CHADBOURNE, A. P.
CHAMBERLAIN, MONTAGUE.
FISHER, A. K.
MCILWRAITH, THOMAS.
MEARNS, EDGAR A.
MERRILL, JAMES C.
RIDGWAY, ROBERT.

Committee on Protection of North American Birds.

SENNETT, GEORGE B., *Chairman.*
DUTCHER, WILLIAM, *Sec'y and Treas.*
ALLEN, J. A.
BICKNELL, E. P.
BREWSTER, WILLIAM.
CHAMBERLAIN, M.
FOSTER, L. S.
GOSS, N. S.
GRINNELL, G. B.
HOLDER, J. B.

Committee on Avian Anatomy.

COUES, ELLIOTT, *Chairman.*
SHUFELDT, R. W.

MEMBERS OF THE AMERICAN ORNITHOLOGISTS' UNION. DECEMBER, 1887.

ACTIVE MEMBERS.

[Ommission of date indicates a Founder.]

	Date of Election
ALDRICH, Hon. CHARLES, Webster City, Iowa	—
ALLEN, J. A., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City	—
BAILEY, H. B., 51 South St., New York City	—
* BAIRD, Prof. SPENCER F., Washington, D. C	—
BARROWS, Prof. W. B., Dept. of Agriculture, Washington, D. C	1883
BATCHELDER, CHARLES F., Cambridge, Mass	—
BELDING, L., Stockton, Cal	1883
BENDIRE, Capt. CHARLES E., U. S. A., Smiths. Inst., Washington, D. C	—
BICKNELL, EUGENE P., P. O. Box 2958, New York City	—
† BREWSTER, WILLIAM, Cambridge, Mass	—
BROWN, NATHAN C., Portland, Me	—
CHAMBERLAIN, MONTAGUE, St. John, N. B	—
COOKE, Prof. W. W., Burlington, Vt	1884
† CORY, CHARLES B., 8 Arlington St., Boston, Mass	—
† COUES, Dr. ELLIOTT, Smiths. Inst., Washington, D. C	—
DEANE, RUTHVEN, 2 Wabash Ave., Chicago, Ill	1883
DUTCHER, WILLIAM, 51 Liberty St., New York City	1886
DWIGHT, JONATHAN, Jr., 2 East 34th St., New York City	1886
† ELLIOT, DANIEL G., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City	—

* Deceased. † Life Member.

FISHER, Dr. ALBERT K., Dept. of Agriculture, Washington, D. C... —
FORBES, Prof. S. A., Champaign, Ill.....1883
GILL, Prof. THEODORE N., Smiths. Inst., Washington, D. C.....1883
† GOSS, Col. N. S., Topeka, Kans.....1883
GRINNELL, Dr. GEORGE B., 'Forest and Stream' Office, New York City,1883
HENSHAW, HENRY W., Smiths. Inst., Washington, D. C.....1883
HOLDER, Dr. J. B., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City..... —
JEFFRIES, Dr. J. AMORY, 91 Newbury St., Boston, Mass.....1883
KIDDER, Dr. J. H., Washington, D. C.....1883
LANGDON, Dr. F. W., 65 West 7th St., Cincinnati, O.....1887
LAWRENCE, GEORGE N., 45 East 21st St., New York City.....1883
LAWRENCE, NEWBOLD T., 51 Liberty St., New York City.....1883
MCILRAITH, THOMAS, Hamilton, Ontario, Can..... —
MEARNS, Dr. EDGAR A., U. S. A., Fort Verde, Ariz..... —
MERRIAM, Dr. C. HART, Dept. of Agriculture, Washington, D. C... —
† MERRILL, Dr. JAMES C., U. S. A., Frankford Arsenal, Philadelphia, Pa.....1883
NEHRLING, H., 815 North Ave., Milwaukee, Wis.....1883
NELSON, E. W., Springerville, Arizona.....1883
PRENTISS, Dr. D. W., 1101 14th St., N. W., Washington, D. C..... —
PURDIE, H. A., West Newton, Mass..... —
RIDGWAY, ROBERT, Smiths. Inst., Washington, D. C..... —
ROBERTS, Dr. THOMAS S., 27 N. 8th St., Minneapolis, Minn.....1883
SAGE, JOHN H., Portland, Conn.....1883
SAUNDERS, WM. E., 188 Dundas St., London, Ontario, Can.....1883
SCOTT, W. E. D., Tarpon Springs, Fla.....1886
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